

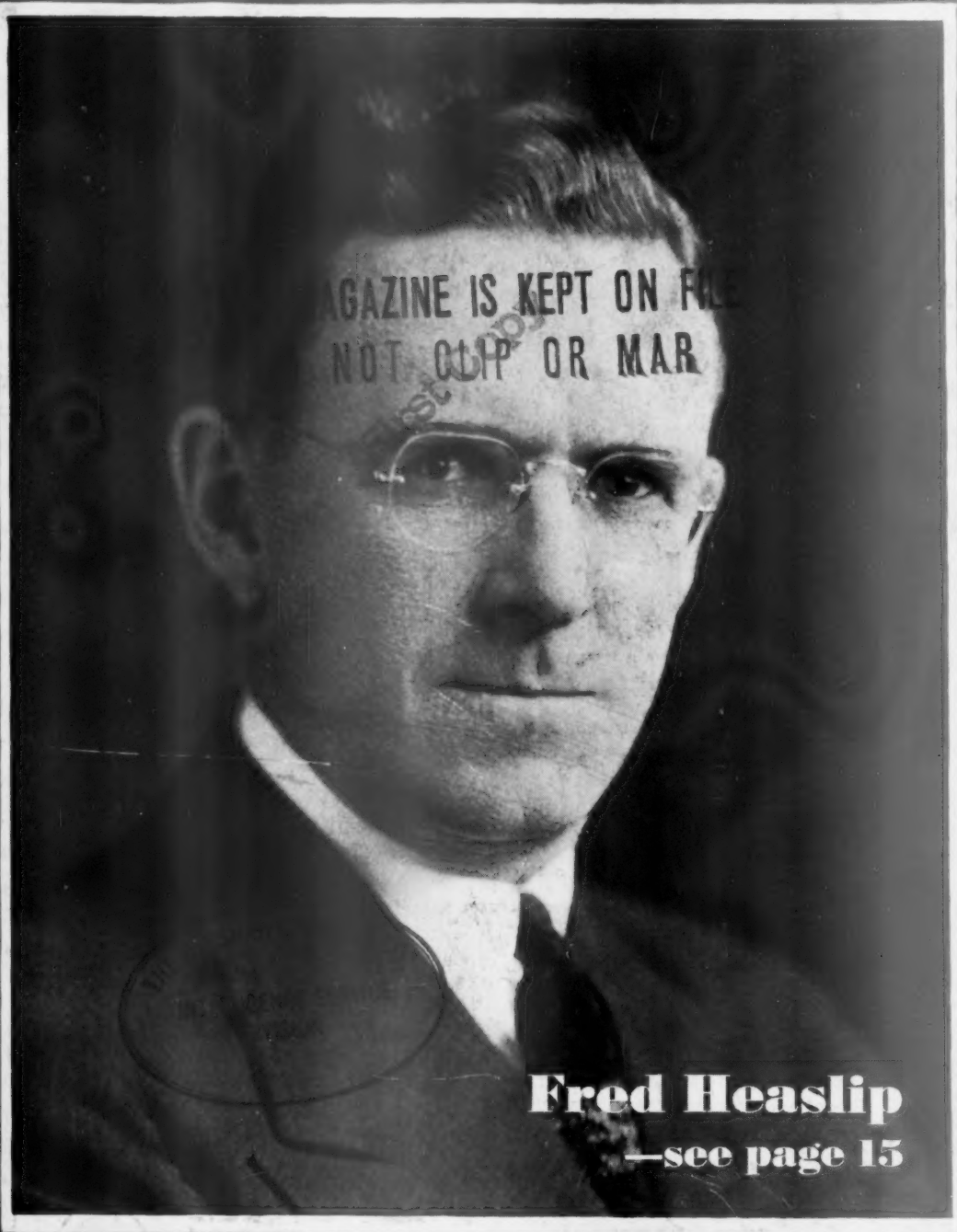
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TECHNOLOGY DEPT

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PURCHASING

SINCE 1915 • THE NATIONAL MAGAZINE FOR PURCHASING AGENTS



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Fred Heaslip
—see page 15

Vol. VI No. 7

JULY 1938



*How long is
an interview*

On the average, about fifteen minutes, you'd say? No, that's not very long—but multiply it by the number of the products you purchase—and you have an astounding figure representing time spent in interviews.

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ARCH BARS
AUTO BODY SHEETS
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Ask us to send you a complete list of Republic products.

Republic Steel

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NILES STEEL PRODUCTS DIVISION



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IN MINES and quarries all over the world are long moving platforms—conveyor belts of rubber-and-fabric, to transport rock or coal. Sometimes the lumps drop several feet onto the moving belt—and those belts wear out in a hurry, cost thousands of dollars to replace.

Experiments had been tried with "cord" belts—in which the internal belt fabric is made of cords running lengthwise, without cross strands. But in the absence of these cross strands the fasteners to hold the belt ends together would invariably tear out.

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problem first designed a belt with small cords, then developed a new cord with greater stamina, called "high-density cord." Then they helped a manufacturer develop a light, aluminum vulcanizer to be taken right out in customers' plants, so the new belts could be made endless on the conveyors.

On a belt-killing quarry conveyor, where the best belt ever made was pounded to shreds in carrying 400,000 tons of rock, one of these new Goodrich endless belts has already carried 3,000,000 tons—and is still efficiently at work.

Savings for belt users will be enormous . . . and similar savings are being made all the time for all users of hose, rolls, rubber linings and all mechanical rubber goods, by Goodrich research of which this is an example—research that assures you more for your money when you specify *Goodrich* to your distributor. The B. F. Goodrich Company, Mechanical Rubber Goods Division, Akron, Ohio.

Goodrich
ALL products *problem* IN RUBBER

PURCHASING

Established 1915 as "The Purchasing Agent"
Consolidated with "The Executive Purchaser"

PURCHASING is an independent journal, not the official organ of any association. It is the only publication of national scope devoted exclusively to the interests and problems of the purchasing executive in industry and government.

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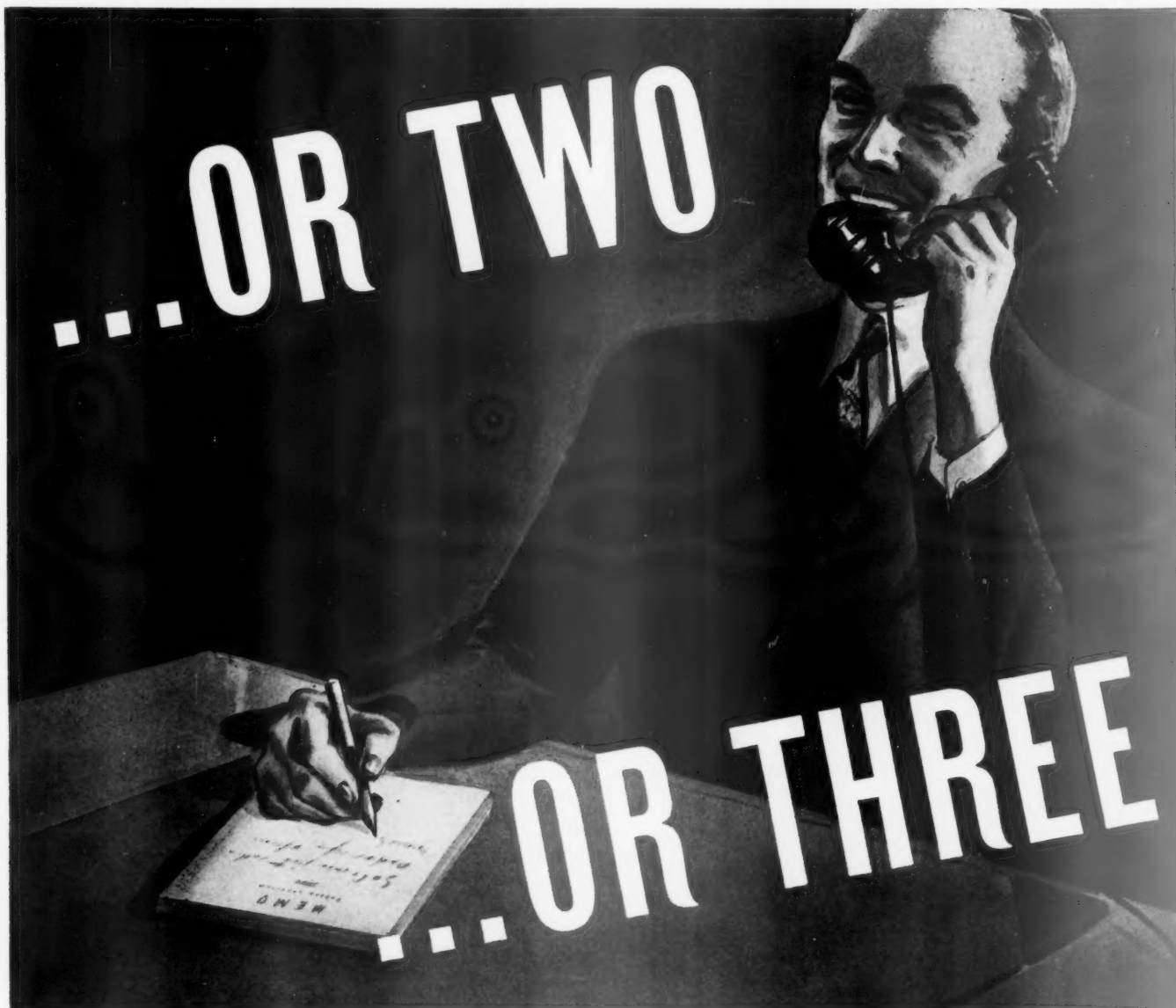
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VOLUME VI
NUMBER 7

July 1938

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Yours on Request

Purchasing agents will find it well worth their while to read the publications reviewed on this and the following pages. From among the many submitted to us, they have been selected by the editors as having greatest interest and utility value to purchasing agents.

To obtain copies, simply fill in and mail coupon at the bottom of this page.

372. Coal and fuel oil analyses, meter and instrument checking, electrical trouble-shooting, indicator cards on engines and compressors are among the "Laboratory Services" for Industrial Plants and Building Owners and Operators" described in an Electrical Testing Laboratories' pamphlet. Facilities are also available for testing commodities purchased in quantities, such as paper, soap, lamps, dry cells, lubricating oils, etc.

373. Actual installation photos in industrial plants and federal, state and municipal projects are shown in a colorful 4-page folder devoted to Kron springless dial scales for batching concrete, asphalt, abrasives, glass, chemicals, foundry charges, cosmetics, drugs, etc.

375. The new handy pocket-size 224-page Ryerson Stock List, recently issued, gives complete listing and descriptions of the wide range of Certified Steels and allied products carried in stock by Joseph T. Ryerson & Son, Inc. Included are handy reference tables, weight charts, standard specification listings, etc. Among the products represented are beams, channels, angles, plates, bars, bands, hoops, cold finished bars, alloys, tool steel, sheets, flat wire, stainless, tubes, copper, brass, babbit, bearings, welding rod and wire, bolts, rivets, etc.

377. Considerable enlightenment on the numerous and diversified facilities offered business by Railway Express Agency, Inc., is furnished in a strikingly illustrated 24-page booklet entitled "Helpful Services of Railway Express."

380. How to brace car shipments of many products including motors, roofing, barrels, paper, oil drums, crates, hot water tanks, etc., is photographically explained in a 24-page 8 1/2" x 11" booklet describing the Stanley Car Banding System. Issued by the Steel Strapping Division of The Stanley Works, this booklet also illustrates all the tools and accessories required for car banding. Actual savings on freight charges plus lower bracing costs and elimination of damage are claimed for this car banding system.

381. A new rust-resisting scale developed by Triner Sales Co. is described in detail in a circular just issued. It should be of special interest to packing houses and food products manufacturers requiring the weighing of fresh meats, butter, cheese, ice cream, milk, fish, etc. Also to laundries and many other establishments where scales are subjected to water, salt, brine and acids.

393. A comprehensive 106-page 8 1/2" x 11" loose-leaf catalog recently issued by Pulmosan Safety Equipment Co. covers virtually all industrial safety equipment requirements. Some of the numerous products illustrated and described are respirators of all types and for all purposes, hoods, helmets, masks, goggles, gloves, welding shields, safety ladder shoes, leggings, aprons, inhalators, fire-fighting equipment, first aid kits and supplies, safety shoes, foot guards, safety belts, salt tablets.

394. A bulletin offering special prices on rebuilt check-writing, adding and calculating machines is available from the Check Writer Co., Inc. Nationally known makes are included, all carrying a guarantee of one year.

395. Samples of labels, stickers and embossed seals in gold, silver and colors are contained in a folder prepared by St. Louis Sticker Co. showing uses for these items in all phases of business practice and advertising. Another folder describes and includes samples of "Protect O Seal," a new transparent sticker used in place of wax to safeguard valuable mail.

402. The new patented Jenkins U-Bolt Gate Valve incorporates many design features which assure reduction of maintenance costs to a minimum, longer service life and greater convenience. Subject of a handsome colorful folder issued by Jenkins Bros., this new valve can be taken apart for cleaning and inspection and put together again in 12 minutes. It has a renewable "Bonnet-Saver-Bushing," which avoids the need for purchasing an entire new bonnet because of worn threads. All design features are explained clearly with the aid of a large cross-section photograph. Specifications and list prices are given.

403. The three modern typewriter models—standard, master and noiseless—offered by Underwood Elliott Fisher Co. are strikingly illustrated in an attractive folder. Newest of these is the Master, which strikes a refreshing note in typewriter design and incorporates new exclusive operating features along with refinements of older, time-tested ones.

409. The New Springfield Floor Sweeper, claimed to effect remarkable savings in man-power, time and maintenance costs, is the subject of a folder issued by M. E. Calhoun. With a capacity which enables one man to sweep approximately 153,000 sq. ft. of floor space in eight hours, this new machine provides efficient control of dust combined with improved cleaning performance. Made in four different sizes, adapted for large open areas and smaller or congested areas. Present users include industrial plants, factories, railroads, mills, airports, oil stations, warehouses, garages, parks, institutions, shipping terminals, etc.

412. An attractive folder stressing the merits of Howard Bond for letterheads and including sample letterheads has just been released by Howard Paper Co.

415. For purchasing agents interested in standardizing record-keeping equipment a new line of "Service" Sectional Post Binders has been developed by C. E. Sheppard Co. Of superior construction, featuring "piano" type hinges with self-lugs, new compensating mechanism, and lacquering of exposed metal parts, these new binders insure maximum strength and wear. Available with canvas, imitation leather, fiber, and bakelite-fiber covers in all sizes. Complete lists of stock and special sizes, accompanied by prices, are given.

423. Modern methods for cleaning operations necessary in truck motor repairing and fleet maintenance are described and illustrated in an interesting 36-page booklet released by Oakite Products, Inc. Cleaning cooling systems, washing motor interiors and exteriors, cleaning engine repair parts, washing truck bodies, methods of paint stripping, steam cleaning chassis and general maintenance cleaning are among the many subjects covered.

424. Capable of handling loads up to 20,000 pounds, various types of "Ironbound" Skid Platforms and details of their construction are illustrated in a 4-page 8 1/2" x 11" folder released by Ironbound Box & Lumber Co. In addition to standard sizes and models, these unique skid platforms can be had specially designed for any particular need or in any desired size.

(Additional listings on page 6)

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On your hard jobs as well as the easy ones—we can prove to you that Norton Wheels are best for your requirements. Why? Because of the available variety of Norton Wheels—the exact combination of abrasive, bond, grain, grade and structure that's best for each job—the combination that will give the fastest cutting action and most economical wheel life.

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Yours on Request

Purchasing agents will find it well worth their while to read the publications reviewed on this and the preceding pages. From among the many submitted to us, they have been selected by the editors as having greatest interest and utility value to purchasing agents.

To obtain copies, simply fill in and mail coupon at the bottom of this page.

428. The complete line of industrial spray-painting and finishing equipment made by The DeVilbiss Co. is covered in a new 28-page, 8½" x 11" Catalog ID. Included are spray-guns, feed tanks and equipment, special containers, air and fluid hose and connections, spray booths and exhaust systems, air compressing outfits, and other spray finishing equipment for industrial use. All recent improvements and additions to the line are also included. Full specifications are given.

429. A new Elevator Rope Catalog, announced by Broderick & Bascom Rope Co., contains definite recommendations as to the ropes best suited for different types of elevators, factors affecting the service of elevator rope, details of rope construction. A new service record form for accurate checking of elevator rope performance is included.

430. Offered as a solution to the alternating-current, adjustable-speed motor problem is a new three-phase, alternating-current, polyspeed motor developed by Crocker-Wheeler Electric Mfg. Co. The latter's 8-page, 8½" x 11" Bulletin 251 illustrates and describes the construction, operation, speed regulation and other facts about this new motor, which is particularly well adapted for use on machine tools, printing presses and in textile mills, power stations, steel mills, paper mills . . . in fact, has applications in practically all industries.

431. "Heat Fag," a term for the force which saps workers' energy in a great many industries, causing lowered efficiency and production, is discussed in a folder issued by Morton Salt Co. Medical experts prescribe salt to counteract this condition. The folder illustrates the new Morton Salt Tablet Dispensers, claims that they provide the most economical and convenient method of supplying salt to workers.

432. The handsome 36-page 8½" x 11" Bulletin 138, issued by S. Morgan Smith Co., is distinguished by numerous large photographs of power impulse turbines and valves, many of them taken "on location." The function, operation and construction of Smith Impulse Turbines are described in a simple, understandable way. Blueprints show typical installation arrangements.

433. "The Lubrication Engineer...His Value to You," an 8-page booklet published by Standard Oil Co. (Indiana) details the numerous ways in which the lubrication engineer's knowledge and experience can be utilized profitably, and cites actual instances of savings effected, not only of lubrication costs but also of operating expenses in many directions. Analysis of lubrication requirements of each machine, selection of lubricants to meet these requirements, methods of application, proper storage and handling, supervision and records are factors in which the lubrication engineer serves.

434. A new bulletin issued by Joseph T. Ryerson & Son, Inc. gives comprehensive description and data on the high physical properties of Rycrome and Nikrome "M"—two heat treated alloy steels used for a great variety of heavy duty applications.

435. Two folders...entitled "Safe" and "From the Mastipave Photograph File"...tell the story of the Parafine Companies' non-slip floor surfacer, Mastipave. Available in sheets or tiles in a number of colors, Mastipave is designed for practically all types of industrial, commercial and institution floors, as the numerous installation photos demonstrate.

436. Some of the 250 types of "Speed Nuts" now being used for production and assembly in all leading industries are illustrated in a 6-page 8½" x 11" folder issued by Speed Nut Div., Tinnerman Stove & Range Co. Photos of typical production applications are also shown. Made of spring steel, cold rolled steel, phosphor bronze or stainless steel, "Speed Nuts" are available from stock in many different forms and are also designed to order in special shapes and sizes.

437. "How to Lessen Vibration with Vibracork," a 12-page 8½" x 11" Booklet, includes numerous installation photos showing how various types of machinery are cushioned with Vibracork to eliminate noise and vibration. Issued by Armstrong Cork Co., it also contains diagrams and description of methods of applying.

438. A revised edition of its Bulletin V-481, entitled "Instant Death to Any Fire," is announced by Walter Kidde Co. Contains latest information on Lux carbon dioxide portable fire extinguishing equipment for use against electrical, flammable liquid and many other fire hazards in the industrial, marine and aviation fields. Describes extinguishers from the 2 lb. size up to the 100 lb. wheeled extinguisher and auxiliary equipment.

439. Facts about its electric screw drives are presented in an 8-page catalog supplement issued by the electric tool division of The Stanley Works. Completely describes all models, which cover virtually all industrial requirements and which are adapted for use with bits for slotted or Phillips recessed head screws and with socket wrenches for bolts and nuts.

440. Contending that for loads from 15 lbs. to 15 tons "off the floor" handling costs less, the 28-page 8½" x 11" Bulletin 5 issued by Harnischfeger Corp. illustrates "P & H" hoists in operation in many industries. Also gives a thorough description of operating features, construction details, sizes and operating data, clearance data, etc.

441. Appearance factors important to the "personality" of a business form the basis of a new "Check List" folder, recently released by Strathmore Paper Co. Letterheads are singled out for a special survey which includes comparative figures showing the cost of a completed letter on no-rag, 25% rag and 100% rag bond. Actual letterheads are enclosed.

442. "American PLUS Screws save thousands a year on the cost of fastening," says the purchase manager pictured in a new folder issued by American Screw Company. Other quotations cited: "Cut assembly time down to a fraction"; "Take half the work out of fastening"; "Eliminate spoilage caused by slipping drivers"; "Prevent lost-time accidents."

443. Step up summer production by using Charavay propeller-type fans, recommends a new folder issued by Hartzell Propeller Fan Co. Models are available to move from 1,000 to 250,000 cubic feet of heat per minute. Other types are made for processing operations, such as cooling and drying, control of dust, steam, fume, odor and fog, etc.

(Additional listings on page 4)

PURCHASING, 11 West 42nd St., New York, N. Y.

I wish to receive the following literature:

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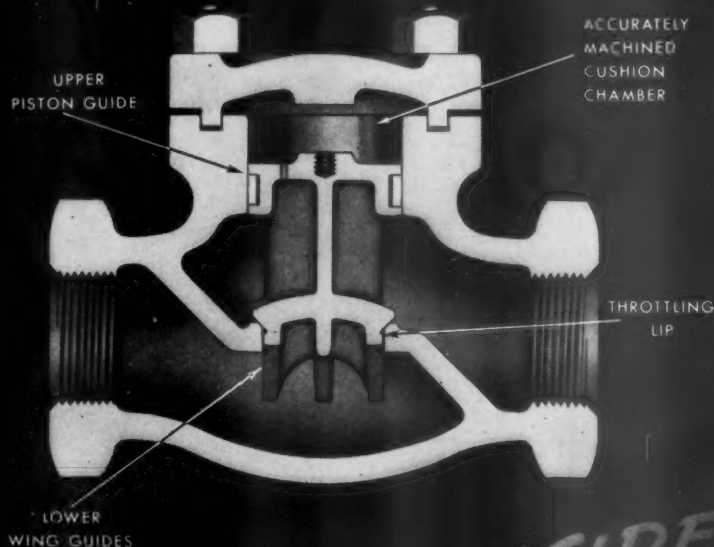
CUSHIONED CHECK VALVES

for Unusual Service

IN POWER PLANTS AND FACTORIES



Crane No. 1507 1/2 Ferrosteel
Cushioned Check Valve.
Cross section shown below.



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THAT COUNTS!*

Step out into the plant—any plant, on process lines—power lines—wherever the flow of liquids and gases is controlled, you will find check valves. Their function—preventing dangerous back flow—is most vital in many piping systems. And because the conditions which they must meet vary widely, check valves deserve more care in selection than valves of any other type.

Regardless of the service, there is a Crane Check made to meet just those conditions. For example, consider those lines where pulsations in flow or intermittent service cause a serious slamming of the disc, which quickly destroys valves or necessitates extensive repairs. Here the Crane Cushioned Check offers distinct advantages. It freely permits flow, but cushions the pulsations and permits long, economical service. Every Crane Check has back of it the Crane resources of skilled engineering, extensive laboratory tests, quality manufacture and careful inspection.

When you need check valves, be sure to get the recommendation of the Crane Representative. Also, ask him for a copy of "Checking up on Check Valves," Crane's new booklet, which will be a real help to you in understanding the many different types of check valves and in selecting the correct type for the service you require.

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IF THE SUPPLY lasts, we will be pleased to send you a copy, but it is strictly understood that we will fill requests in order of their receipt.

THERE WILL BE no cost or obligation involved in your request for a copy of this study.

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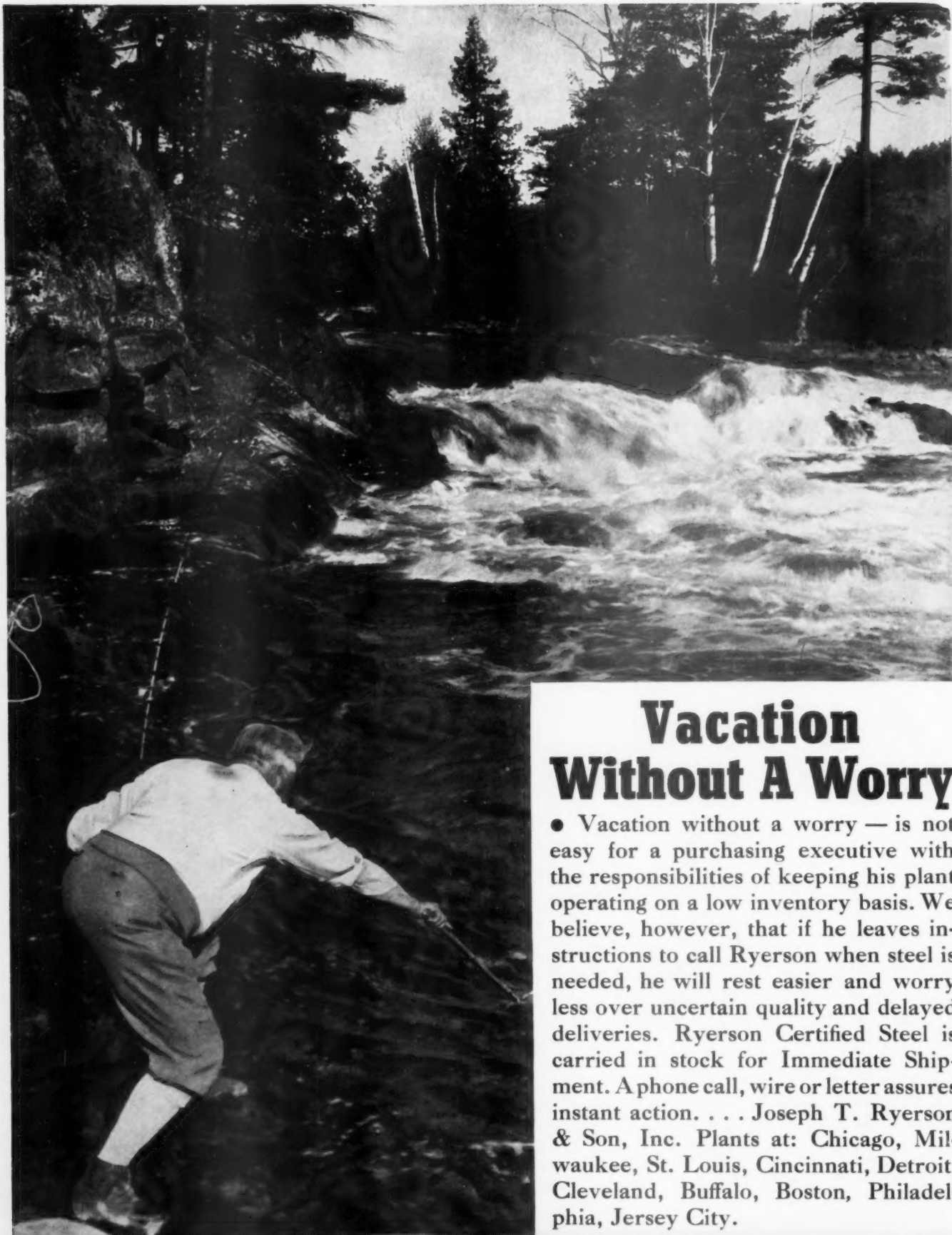
Advertising space—free. Circulation—millions. Results—increased sales, increased prestige. It's your shipping box talking, from the time it leaves your warehouse...through the channels of distribution...to the world's counters and display windows. Make this inexpensive advertising medium an indispensable part of your sales promotion campaign. Transform your shipping box into a colorful, modern, effective traveling advertisement. How? Consult Hinde & Dauch... the Authority on Packaging.

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● Vacation without a worry — is not easy for a purchasing executive with the responsibilities of keeping his plant operating on a low inventory basis. We believe, however, that if he leaves instructions to call Ryerson when steel is needed, he will rest easier and worry less over uncertain quality and delayed deliveries. Ryerson Certified Steel is carried in stock for Immediate Shipment. A phone call, wire or letter assures instant action. . . . Joseph T. Ryerson & Son, Inc. Plants at: Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Cleveland, Buffalo, Boston, Philadelphia, Jersey City.

RYERSON *Certified* **STEELS**

The Steel Price Reduction

IT IS unlikely that any immediate buying movement will be prompted by the reduction in steel prices announced at the close of June. Nevertheless, the adjustment will prove to be a highly beneficial measure for that industry as well as for business generally.

Low prices alone do not constitute a buying incentive, especially when production is so far below capacity as to permit expansion and ample supplies at relatively short notice. The reduction in galvanized sheet prices earlier in the month caused no great interest among buyers. Purchasing depends on the assurance of an outlet for manufactured goods, and is characteristically most active and healthy on a rising market. The previous steel price, marking time in a prolonged period of business inertia, offered none of these conditions.

The new schedule has definitely brought prices into a buying zone consistent with market conditions. Purchasers who have sought diligently enough and persistently enough for their requirements over the past several weeks have played some part in establishing the new level and making it generally available. At the present point, steel prices may be expected to stimulate more active marketing of products which use steel largely as a raw material, and to provide a more logical starting point for price recovery as a general upswing in business develops. All of this will help very materially.

Meanwhile, some other important objectives have been attained. A heavy mill inventory has been substantially reduced without too great a write-off. The industry is in line with the current government program for recovery, and is in an excellent tactical position with regard to impending labor negotiations and with the latest basing-point inquiry. If, as many believe, the price reduction was really some months overdue, no one can question the fact that it has been most artfully timed.

There may be considerable pressure for a general reduction of prices following the lead of this very important commodity. But in this case, steel has been a follower rather than a leader. The major adjustments have already been made, and it is more likely that the trend will be in the other direction if and when demand develops.

Greater volume is of course urgently needed and earnestly desired, but it is questionable whether steel producers will be unduly hungry for volume at the new price level. In this connection, copper provides a pertinent comparison in the past month's experience. One producer raised the quotation $\frac{1}{4}$ -cent, ostensibly signing off any further immediate interest in the current 9-cent market and being content to supply its own subsidiaries exclusively. But that slight advance was the spark needed to touch off a buying movement of impressive proportions, which carried the market up to $9\frac{1}{2}$ cents in two days. Steel may now be in a position to set a similar wave in motion, to the benefit of all industry.

STUART F. HEINRITZ, EDITOR

THE CASE FOR BETTER BELTING

... and a simple but conclusive test that demonstrates comparative values

A. L. DAVIS

Graton & Knight Company

LEATHER BELTING has been turning the pulleys of industry for many, many years, but it is only since modern engineering has been able to analyze the intricate, technical phases of power transmission, and modern science enlighten us as to the chemical make-up of leather, that we have really come to know why one belt will deliver far more power than another. It is only within recent years that power transmission engineers have been able to prescribe a leather belt of definite specifications and tannage for a certain job and know that it is the belt which will do this job better than any other.

Nor has it been an easy matter for power transmission authorities to convince industry at large that this can be done or that it really means anything. And why so? First of all because it has been a habit of many years standing to catalog belting as just another butter-and-egg commodity. The opinion of industry long has been, and to a great extent still is, that belting is belting and if one manufacturer offers it to you at 10% less than the next, you are foolish if you do not take advantage of the lower price. Such habits are extremely hard things to break, and unfortunately, in this case there has been, and still is, much pressure brought to bear to keep industry shackled to such a belief, and to discredit the findings of modern power transmission engineering. The only salvation of the belt manufacturer whose product cannot match performance with that of his modern, scientifically equipped competitor is to sell at a lower price, and to take every possible means to put over the idea that all belting is alike.

Today, however, the belting user who really wants to know the facts can quickly and easily prove to his own satisfaction that the scientific application of a specified grade of high quality leather belting, will give him ultimate savings far in excess of any higher initial cost.

The manufacturers of quality leather belting have developed various types of machines for testing belt efficiency. One of these is the belt testing dynamometer—a simple apparatus consisting of a motor driving a generator which lights a panel of electric light bulbs.

Let us analyze a typical test made on this machine between two belts of the following specifications:

Belt A—high quality leather, scientifically constructed.

Belt B—ordinary commercial grade leather.

Both of identical length, width, thickness and number of plies.

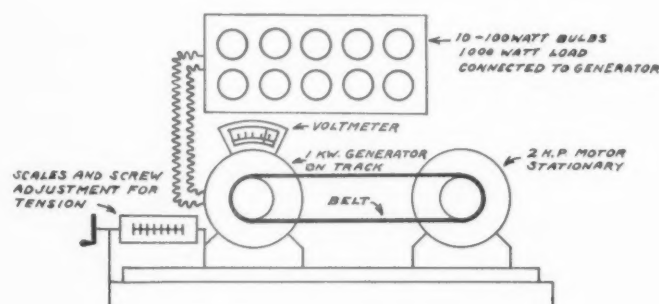
First, Belt A is placed on the pulleys and the power is turned on so that the motor will drive the generator. The generator is mounted on a track, and by a spring scale with a screw adjustment, the tension on the belt

can be definitely regulated. Enough tension is given the belt to cause the voltmeter, which is hooked up with the generator, to register a normal reading of 110 volts. Let us say then, that this belt, at a tension of 35 pounds, is delivering its full rated load, causing the generator to produce 110 volts of electricity, and light the bulbs to their full brilliance.

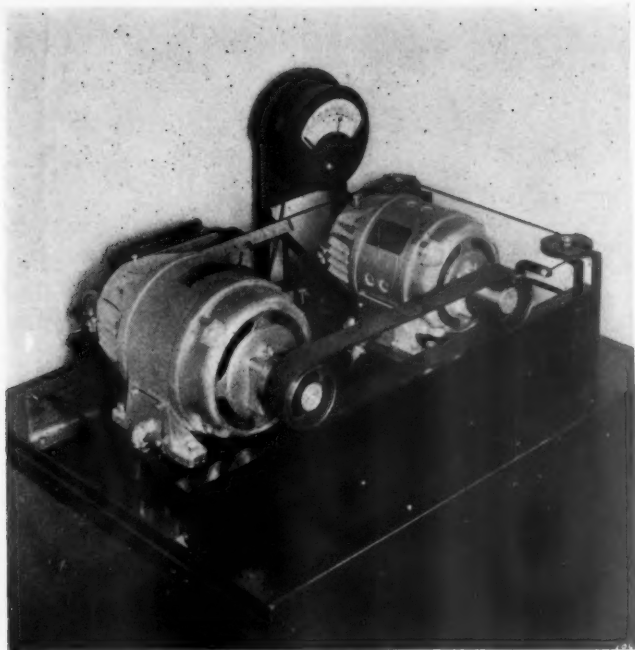
Now Belt B is placed on the pulleys and run under the same tension, i. e., 35 pounds. This time the voltmeter registers 104 and continues to fluctuate somewhere around that point. And the actual job which is being done, the producing of electricity, is also noticeably affected, because the lights are perceptibly dimmer and less steady than with Belt A.

It is not at all difficult to see what is happening. Belt B is not gripping the pulleys as it should, and there is a definite loss of power—power which is going into the motor and for which you are paying, whether or not it is delivered on to the generator by the belt.

Now just suppose that this generator is a production machine in your plant—that instead of generating electricity, it is turning out a product of your manufacture. If Belt B is driving this production machine of yours, instead of 104 volts of electricity, it is turning out 104 units in a given period of time. And then realize what would happen if you placed Belt A on this drive. Your production would be increased from approximately 104 units to 110 units in the same period of time. What this belt would actually give you is *lower unit cost of production* because it enables your machine, at no added cost, to turn out the same number of units in a shorter period of time. And this means increased profits in any man's language.



The testing apparatus is not complicated



A test on the dynamometer

Perhaps you will ask why not increase the tension on Belt B—run it tighter on the pulleys, so that it cannot slip and lose power. Very true, this can be done, and Belt B will do the same job as Belt A. The voltmeter will read 110 volts and the lights will burn brightly, or, to continue the analogy of the production machine in your plant, Belt B will turn out the same number of units in a given length of time as Belt A. It does not require a course in engineering, however, to realize that the greatly increased tension on this belt, which may be even twice that on Belt A, will have a number of disastrous effects. The excessive strain resulting from this added tension will play havoc with the belt itself. Laps and plies will soon pull apart and the very fibers of the leather will be broken down. And what is more serious, the wear and tear on expensive machine parts, particularly bearings, is greatly increased and means greater maintenance and replacement cost.

The dynamometer, as we said, is one of the simplest types of equipment for testing the efficiency of belt drives. Much more complicated devices have been developed which show in far greater detail the results of comparative tests between different types of belting. This simple dynamometer unit, however, does a very effective competitive testing job, and the result can be easily understood and appreciated by anyone.

The final and conclusive proof that there is a very marked difference in the efficiency of various brands of belting is for the user to run a test in his own plant. True, it is difficult to check production on many types of operations, but there is, without question, some one machine in your plant upon which a production test can be made.

Belt the drive on this machine with an ordinary commercial oak belt, and keep a record of the units which it produces over a definite period of time. Then have a power transmission engineer, or the representa-

tive of a modern, scientifically equipped belt manufacturer take care of this drive with a specified belt. You may pay slightly more, but a comparison of the performance records of the two belts will drive home to you, as in no other way, how little this added first cost means when compared with the lower cost of production that will result.

In short, this is what the buyer, who recognizes how greatly the efficiency of transmission belting affects his profits, insists upon today: Belting that will give him reduced maintenance and operating costs and improved production; belting that will keep his machines operating steadily at, or near to, the speed for which they are designed, i. e., the speed with which they turn out the largest quantity of production in a given period of time; belting that will keep his machines operating steadily so as to reduce shutdowns for belting adjustments, repairs, or replacements to an absolute minimum; belting that will transmit the power required to his machines at the lowest possible tension, so that belt and bearing life will be longer.

If he is to obtain these benefits, he can no longer regard belting as so much material to be bought by the pound or by the foot, but as a very definite and important part of his equipment—the vital connecting link between power and production. He must realize that belting which will do all this for him must be made of better material and with scientific skill, and the slight premium in first cost will come back to him many times over through lower transmission costs and greater and, in many cases, better quality production.

THERE'S
Logic



IN BUYING BARNES-MADE SPRINGS

These production safeguards insure the success of spring orders placed with Barnes:

- 1 A specialized crew to enter, route and check your order all along the line.
- 2 Compact production units capable of quick shift-overs in case of emergency, with maximum speed on replacements and hold-ups kept at a minimum.
- 3 Completely stocked warehouse fed by Barnes' own mill—specializing in high-grade cold rolled spring steel.
- 4 Experienced trouble-shooters to help unravel the kinks in your spring design or performance.

Next time have it Barnes-made

WALLACE BARNES CO.

Division of Associated Spring Corporation
BRISTOL, CONNECTICUT

F. O. B.

(Filosofy of Buying)

A NEW AND UNIQUE idea in business service is "Hostetler's Good News Letter," a weekly publication dated from Cleveland College, where Publisher Merle Hostetler teaches money, banking and business trends. Conceived as "openly and avowedly a resume of only the favorable features in the outlook for trade, industry and finance," it is designed to serve those who can get all the bad news from reading the newspapers, but who need the tonic of good news in order to start the week right. Commentator John W. Love of the *Cleveland Press* remarks that the letter is clearly not intended for purchasing agents or credit men.

F. O. B. does not accept Mr. Love's implied characterization of purchasing agents, but does agree with his further observation that what's good news for one person isn't necessarily good news for the next one.

HOW TO CENTRALIZE purchasing authority without relinquishing the cherished buying prerogative was the problem confronting Councilman James Yorna of Haledon, N. J., former member of the borough purchasing committee, who had failed of reappointment to that post. His solution was a resolution proposing that the entire board serve as the purchasing committee. The motion died for want of a second.

A TEST CASE of far reaching importance will shortly come before the Missouri Supreme Court as the result of a bill of exceptions filed in the case of Liberty Mutual Insurance Company et al v. Clark et al. The Circuit Court, by a 2-to-1 decision, had previously handed down a ruling that defined the adjustment and settlement of claims as the practice of law, and a number of actions in this and other states, predicated upon the ruling, indicate the possibility, if not the probability, that a sort of legal monopoly may be urged upon any business of laymen in which form contracts are used.

Curious Cuthbert wonders why N.A.P.A. doesn't take a leaf from the book of the American Bar Association and establish a standing committee on the Unauthorized Practice of Purchasing. It might be one way of settling for all time the question of who does the buying.

PRESS COMMENT on the St. Louis convention of N.A.P.A. was generally favorable, recognizing the meeting at its true value as a serious and influential executive conference. There were two exceptions. Most widely circulated commentary was Damon Runyan's column, describing a P. A. convention as the wildest and spendingest of all business gatherings, presumably because the p. a. was having his lone annual fling at the company expense account. Unfortunately, his commentary was based on a supposedly eye-witness experience with the N.A.P.A. convention at Atlantic City—and there must be some mistake about that, for the association has never happened to convene at that delightful spot. Damon must have seen two other fellows. *Business Week* went to the other extreme with an imaginative account giving the impression of a dour assemblage that would provide no clients for the night clubs and other hot-spots since the delegates were congenitally opposed to spending a nickel and were unhappy about the whole affair anyway because they were temporarily deprived of their accustomed recreation in the way of chiseling prices and browbeating the noble salesmen.

The moral, if any, is that some day we may expect a generally fair and understanding appraisal of the purchasing agent as a human being and a business man, but meanwhile the truth about purchasing must be sought from purchasing men themselves.

Says the Old Line Buyer: "This recession seems to have started a boom in the questionnaire survey business. By the time the results are all in, folks will be too busy to add up the totals."

STYLE note: Snappier suits for future graduates of the Montana State Prison are forecast in the policy of State Purchasing Agent McQuitty, who recently placed an order for new suits in a variety of sizes, patterns and styles, including double breasted and single breasted models, with a variance of choice in lapel rolling and other small items of sartorial detail. However, he warns, it will be the "approximate fit" of the suit, rather than individual preference, which will be the determining factor in the selection of the going out attire.

SILHOUETTE STUDIES

28: Frederick James Heaslip

ABOUT A DOZEN years ago, President John Whitehead of the Chicago Purchasing Agents' Association startled the membership by announcing that the "Mysterious Mr. X" would be present at the next meeting, ready to answer any and all questions relating to the trends of commodity prices. Then, confidentially, he startled Fred Heaslip even more by asking him to take the part of the omniscient professor.

Thoroughly unassuming by nature, Heaslip protested the impossibility of making good on the sweeping promise of that assignment. To be sure, he had a buyer's keen interest in markets, well developed by a characteristically studious and analytical approach to his job. Likewise, he was a willing and cooperative association member, and had a rather extraordinary capacity for work and concentration. Whitehead was persuasive. As a program feature, the stunt promised to be an effective and interesting means of inspiring discussion on a pertinent phase of purchasing. Heaslip agreed to give it a trial and to do his best. There followed a month of intensive preparation as "Mr. X" fortified himself with facts and figures in anticipation of the questions that might be raised.

The program went on as scheduled, and developed into the most lively and informative interchange of commodity knowledge and opinion that the association had known for many a day. By popular demand, it was repeated as a regular feature of the meetings over the balance of the year.

Out of that project grew a monthly article on "The Trend of Commodity Prices" which appeared first in the association magazine and has since been syndicated to several other publications in the business field. The soundness of Heaslip's observation and inter-

pretation has established his position in the front rank of practical students of the commodity markets. Two years ago, his experience and broad knowledge were drafted for national service in his appointment as chairman of the N.A.P.A. Business Survey Committee, whose monthly summary and analysis, based on periodic reports from scores of purchasing men throughout this country and Canada, is recognized as one of the outstanding services of the association, both for the membership and for the business community at large.

NOW A FULL-FLEDGED American citizen, Fred Heaslip is a native of Canada and acquired his business training and his early buying experience in the great grain milling industry of the Dominion. His grandfather was for some forty years Police Magistrate in the little town of Gananoque, Ontario. His father, an iron molder by trade, brought the family into the industrial centers.

Fred's first job after graduation from the Collegiate Institute at Peterboro, Ontario, was with the Quaker Oats Company in that city. He served his business apprenticeship in the manufacturing department, meanwhile continuing his studies by night courses at a business college. During this period he gained a practical knowledge and appreciation of plant operation and requirements that has been a controlling influence in his work ever since. He has always thought of buying primarily in terms of its contribution to smooth and economical production. The mechanics of the purchasing job are secondary to this basic consideration.

Transferred to the mills at Saskatoon, Saskatchewan, he was given the job of procuring grain for these mills and for delivery on open contracts in the Winnipeg markets. It

was his personal introduction to the law of supply and demand in one of its most fickle and variable manifestations—a crop market. The mills had to operate on schedule, and whether grain was plentiful or scarce a steady supply must be kept flowing in.

That meant plenty of field work, covering the broad Prairie Provinces of Manitoba, Saskatchewan and Alberta, and dealing with the producers at the source. It was strenuous work, requiring long hours of travel over gravel roads in all extremes of weather, with sand storms and sub-zero temperatures to contend with as well as the vagaries of the market. At the same time, it was an interesting and stimulating experience and an excellent education in purchasing work.

HEASLIP WAS a seasoned buyer when he came to Chicago and entered the purchasing department of the United States Gypsum Company. Four years later he went with Fairbanks, Morse and Company, soon advancing to the position of Assistant Purchasing Agent. Five years ago, when Mr. Whitehead was named Director of Research and Development for the company, Heaslip succeeded him at the Purchasing Agent's desk.

Aside from his interest in commodity markets, his work in purchasing has been characterized by two well defined policies concerning his relationships within and outside of the organization.

Retaining the convictions implanted by his training in production, he makes a continual effort to foster the closest cooperation between purchasing and manufacturing operations. Each week he takes the time to visit at least one of the company's plants, talking over supply requirements with the production executives and observing the actual use and application of

materials, to the end that the man who buys the goods and the man who works with them may meet upon a common ground of understanding. By choice, his staff is recruited from the stores department, so that all buyers may be truly familiar with the items recorded on the requisitions and orders that they handle.

In his dealings with salesmen, he makes no fetish of seeing every one who calls, but it is distinctly understood that he is at all times available to the salesman with a message for the company. Systematic, but thoroughly informal, he has a particular aversion to any rigid schedule of specified calling hours. In taking this stand, he has primarily in mind the attitude of common courtesy that regards the visitor's convenience as equally important with that of the buyer, as they seek to meet on transactions of mutual interest. Beyond that first consideration, he has found the policy of tangible value in creating good will for his company through these many daily contacts with outside representatives.

This privilege is rarely abused. Salesmen respect Fred Heaslip for his friendliness, his fair and open dealing, and his practical knowledge of materials and markets.

During the days of the National Recovery Administration, he was appointed as government member of the Code Authority for the Photo Engraving Industry, an assignment for which he was well suited by his judicial sense and his rationally liberal philosophy of industry. The result of that experience is a firm conviction that business methods cannot be successfully regulated by rule-of-thumb procedures.

IN ASSOCIATION work, he has given generously of his time and ability. He was elected secretary of the Chicago Association in 1927, and two years later took over the editorship of the *Chicago Purchaser*. His competence in this dual office is attested by the fact of his continuous service in both capacities until a few months ago. His resignation from office last spring, to reclaim

a little of his time for other personal interests and activities, was accepted with genuine regret. The Chicago Association set aside its monthly meeting in May as a testimonial and tribute to his work of more than a decade, and one of the contemporary journals aptly captioned its report of the new appointments: "Two Men Succeed Heaslip at Chicago."

As an editor, he showed originality, balance, taste and skill. By example and cooperative action he worked assiduously toward raising the general level of editorial practice and mechanical excellence among association journals. It was a slightly embarrassing circumstance, but nevertheless well deserved, that he and his publication won the Chicago Award twice during the three years that this plaque has been bestowed.

The extent and the exacting nature of these extra services naturally took a toll of long hours. In effect, there has been a second office at the Heaslip apartment, and Fred has spent three out of four week-ends and countless evenings at that desk. He has found a good deal of satisfaction in the work, and it is safe to predict that the "office" will be far from idle despite the fact that he has now relinquished a portion of the outside responsibilities. But it will make possible a fuller measure of the active outdoor life which he has always thoroughly enjoyed.

FRED HEASLIP'S square shoulders, the alive-ness of his carriage, his keen eyes and quick responses, bespeak the poise and confidence of the natural athlete and successful competitor. That impression is borne out by the facts. As a lad of fourteen, he was playing league baseball and hockey around Peterboro, subsequently taking an active part in semi-professional ranks and in the Ontario Hockey Association. Some of the vivid memories of youth are the mental debates whether to go to church and usher of a Sunday morning when the marks of Saturday's encounter were all too evident in the form of blackened eyes or gashed features.

That interest in strenuous sport is as strong today. Above all else, he likes to ride a spirited horse. His idea of a thoroughly enjoyable week-end is to alternate riding with a couple of rounds of golf. Meanwhile, when time and season do not permit that particular form of relaxation, he keeps in condition with handball at the Kimrock Athletic Club in Chicago, and is known as a better than average performer although he has taken little part in tournament competition. He generally packs his togs when going on a trip, and squeezes a few hours from a crowded convention program to renew annual rivalries with other addicts of the game.

DURING the recent months of the present business recession, Heaslip's market analyses have naturally been on the grave side. That attitude does not seem to jibe with his eager, enthusiastic nature and the ready twinkle in his eyes. But while he is anything but a pessimist, he is an uncompromising realist. Taxed with the conservatism of some recent buying recommendations, he counters with a figure of speech from the world of sport, attributed to Dizzy Dean, another of Chicago's adopted sons: "You can't hit 'em when you can't see 'em." And purchasing men will continue to have confidence in Fred Heaslip's analyses because they know that he can be counted on to call the pitches as he sees them—and to see them with uncommon clarity.

—S.F.H.

J. J. MARANTIC, formerly of the Pines Winterfront Co., has been appointed purchasing agent for the Binks Mfg. Co., Chicago, succeeding E. W. KINDER, who has been assigned to other duties in the organization.

GEORGE P. HOWELL has resigned as purchasing director of the Seaman Body Corp., Milwaukee, to become district manager for the Acme Steel Co. in the Wisconsin and Upper Michigan territory.

THE BILL OF LADING

DAVID L. TOPHAM

Purchasing Agent & Traffic Manager
Holyoke Card & Paper Co.
Springfield, Mass.

THE BILL OF LADING is one of the most important documental vehicles of commerce, yet it was not until the Federal Bill of Lading Act (the Pomerene Act) was enacted, taking effect January 1st, 1916, that it afforded security for the advancement of money by the banks. In commercial importance, the passage of this law was considered by the banks as second only to the Federal Reserve Act.

When it is considered that the bill of lading is documentary evidence of the shipment of goods, it would seem that its importance as a necessary instrument of credit would have been recognized long before. Prior to the passage of the act, the bill of lading offered no security whatever to the party advancing money thereon. While many states passed, from time to time, what was known as the Uniform Bill of Lading Act, it was far from satisfactory because it lacked uniformity or lacked the requirements of a fundamentally sound document.

The bill of lading serves a dual purpose because it is both a receipt for the goods and the contract of shipment. There are two kinds, the straight bill and the order bill.

The law defines a straight bill as one in which it was stated that the goods are consigned or destined to a specified person and must have plainly on its face the words "not negotiable" or "non-negotiable."

An order bill is one in which it is stated that the goods are consigned or destined to the order of any person named. Any provision in such a bill or any notice, contract,

rule, regulation or tariff that it is non-negotiable shall be null and void, unless upon its face in writing agreed to by the shipper.

Order bills of lading must not be issued in parts or sets for the transportation of goods between points in the United States. If so issued, the carrier issuing them shall be liable for failure to deliver the goods described therein to anyone who purchases a part in good faith for value even though the purchase be after the delivery of the goods by the carrier to a holder of one of the other parts.

A carrier, in the absence of some lawful excuse, is bound to deliver the goods upon a demand made by either the consignee named in the bill or, if an order bill, by the holder subject to the carrier's lien for lawful charges. The insertion in an order bill of the name of a person to be notified does not limit the negotiability of the bill.

Possession of an order bill of lading and an offer in good faith to surrender, properly endorsed, and willingness to receipt for the goods, places upon the carrier a legal obligation to deliver and the burden shall be upon the carrier to establish a lawful excuse for failure to do so.

A carrier is justified in delivering goods to a person lawfully entitled to possession of them or the consignee named in a straight bill or a person in possession of an order bill, by the terms of which the goods are deliverable to his order, or has been indorsed to him in blank by the consignee, or by the mediate or in-



termediate indorsee of the consignee.

If a carrier delivers goods to one who is not lawfully entitled to the possession of them, the carrier shall be liable to anyone having a right of possession of property in them, and this would be so even if delivered to the consignee named in the bill or the holder of an order bill properly endorsed if, prior to delivery, the carrier had been requested by or on behalf of a person having a right of property or possession in the goods, not to do so, or had information at the time of delivery that it was to a person not lawfully entitled to possession of the goods.

Except for legal process, if a carrier delivers goods on an order bill and fails to take up and cancel the bill, it will be liable for failure to deliver the goods to anyone, who for value and in good faith purchases such a bill, even though delivery was made to a person entitled thereto and regardless whether the purchaser acquired title before or after delivery of the goods.

Where an order bill is lost, stolen or destroyed, a Court of competent jurisdiction, upon satisfactory proof, may order delivery of the goods by furnishing a bond, or a voluntary indemnifying bond without order of the Court shall also be binding

between the parties thereto. However, this will not relieve the carrier from liability to a person to whom the bill has been negotiated for value without notice of the proceedings or delivery of the goods.

A bill marked "duplicate" or "copy" issued by the carrier, indicating that the document is not an original bill, imposes on it the liability of one who represents and warrants that such a bill is an accurate copy of an original bill, properly issued, but no other liability.

If some one other than the consignee or person in possession of the bill has a claim to the title or possession of the goods, and the carrier has information of such claim, the carrier shall be excused from liability for refusing to deliver the goods, either to the consignee or person in possession of the bill or to the adverse claimant until the carrier has had a reasonable time to ascertain the validity of the adverse claim or to bring legal proceedings to compel all claimants to interplead.

When a carrier issues a bill of lading, it shall be liable to the owner of the goods covered by a straight bill subject to existing right of stoppage *in transitu*, or the holder of an order bill who has given value in good faith, relying upon the description therein of the goods, for damages caused by the non-receipt of all or part of the goods or their failure to correspond with the description in the bill at time of issue.

When goods are delivered to a carrier by the owner, or by a person whose act in conveying the title to a purchaser for value in good faith would bind the owner, and an order bill is issued for them, they cannot thereafter, while in possession of the carrier, be attached by garnishment or otherwise, or be levied upon under an execution unless the bill first be surrendered to the carrier or its negotiation enjoined.

A creditor, whose debtor is the owner of an order bill, shall be entitled to such aid from the Courts of appropriate jurisdiction by injunction and otherwise in attaching such bill or in satisfying the claim by such means in law or equity in

regard to property which cannot be attached or levied upon by ordinary legal process.

An order bill may be negotiated by delivery where, by the terms of the bill, the carrier undertakes to deliver the goods to the order of a specified person, and such person or a subsequent indorsee of the bill has indorsed it in blank, or it may be negotiated by the indorsement of the person to whose order the goods are deliverable by the terms of the bill. Such indorsement may be in blank or to a specified person. Subsequent negotiation may be made in like manner.

A straight bill cannot be negotiated free from existing equities, and the indorsement of such a bill gives the transferee no additional right.

An order bill may be negotiated by any person in possession of same, however such possession may have been acquired, if, by the terms of the bill, the carrier undertakes to deliver the goods to the order of such person, or if at the time of negotiation the bill is in such form that it may be negotiated by delivery.

A person to whom an order bill has been duly negotiated, acquires thereby such titles to the goods as the person negotiating the bill had or had ability to convey to a purchaser in good faith for value. The carrier is legally obligated to hold possession of the goods for him according to the terms of the bill.

A person who negotiates or transfers for value, a bill by indorsement or delivery, unless a contrary intention appears, warrants that the bill is genuine and that he has a legal right to transfer it, that he has knowledge of no fact which would impair the validity or worth of the bill and that he has a right to transfer title to the goods. The indorsement of a bill does not make the indorsee liable for any failure on the part of the carrier or previous indorsees to fulfil their respective obligations.

The validity of the negotiation of an order bill is not impaired by the fact that the owner of the bill was deprived of its possession by fraud, accident, mistake, loss, theft or con-

version, if the person to whom the bill was negotiated gave value in good faith and without notice.

In case a person sells, mortgages or pledges an order bill or the goods it represents, and remains in possession of the bill, a subsequent negotiation in good faith for value and without notice of the previous transaction will transfer ownership to the new holder free from any other right.

Where an order bill has been issued for goods, no seller's lien or right of stoppage in transit shall defeat the rights of any purchaser for value in good faith, to whom such bill has been negotiated. A carrier is neither obliged nor justified in delivering goods to an unpaid seller, unless such bill is first surrendered for cancellation.

There are several other provisions in the Federal Bill of Lading Act, but they are encountered only occasionally and not under ordinary conditions and therefore no attempt will be made to treat them here.

It can readily be seen, however, that great importance is attached to the bill of lading as documentary evidence of property rights and enters into every transaction where the shipment of goods is involved.

ARTHUR BAKER, Executive Secretary of the Los Angeles Purchasing Agents Association, presided at the Public Buying Section of the tenth annual Institute of Government held under the auspices of the University of California last month. Speakers included COL. WAYNE R. ALLEN, County Purchasing Agent, "Public Purchasing in Relation to Other Departments;" A. J. HOLM, City Purchasing Agent, "Proper Specifications in Public Buying;" WILLIAM R. FOSTER, Storekeeper for the City Department of Water and Power, "Public Stores Keeping;" and SAUL A. JOSEPH, Purchasing Agent for the Metropolitan Water District of Southern California, "Salvage."

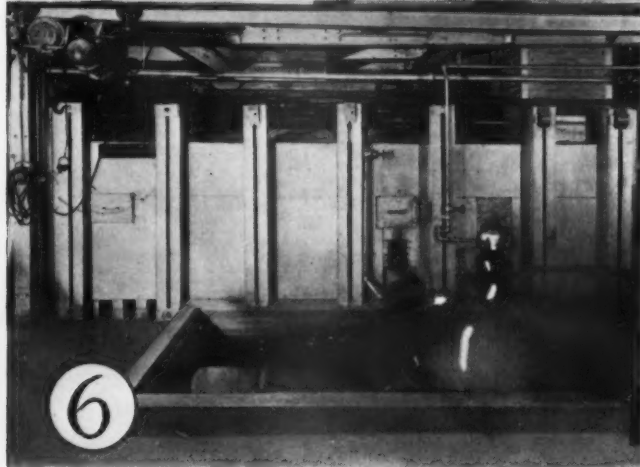
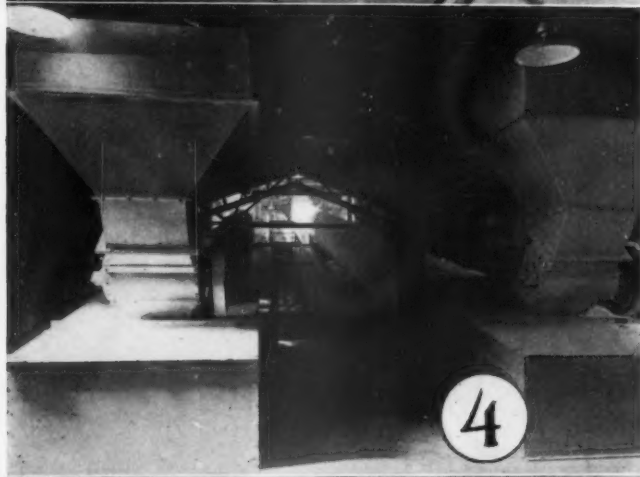
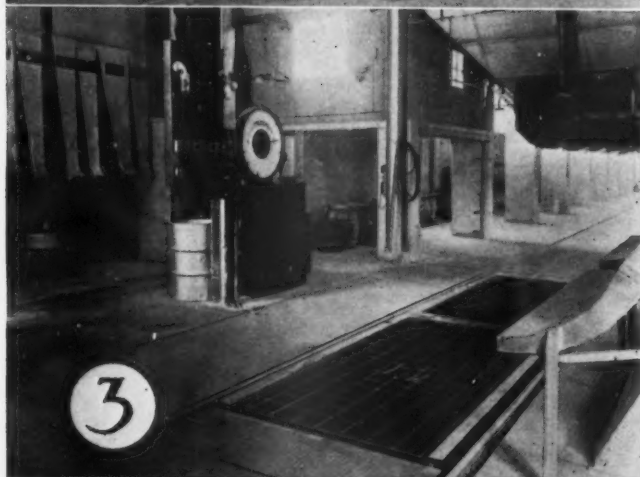
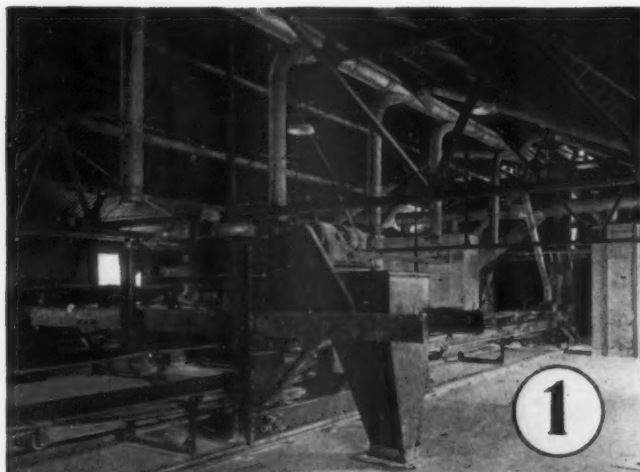
PHIL M. HOWSE has been appointed City Purchasing Agent at Nashville, Tenn., succeeding VERNER TOLMIE.



"I was just going to demonstrate our new Safety Smoke Respirator, but the P. A. wasn't quick enough to get it on."

Endless Flow Production of Enamel Frits

Continuous process smelting and automatic handling of materials make for efficiency in production



FOR THE first time in the porcelain enameling industry, frit is now being produced by a continuous, endless flow process. A photographic "plant visit" is afforded by the accompanying views, taken in the new plant of the Ferro Enamel Corporation, Cleveland, Ohio, largest unit in the industry, where the development has recently been made possible by means of patented continuous smelters and an ingenious installation of conveyor equipment. Construction of a large new storage and mixing building, as well as an additional finished storage warehouse were a necessary part of the installation. The new arrangement not only increases the rate of production, but also makes for a high degree of uniformity and quality control in the resulting product, as every effort has been made to minimize the human element and its attendant hazards of error.

Raw Materials

From the unloading dock to the finished storage warehouse, materials flow continuously and almost automatically through the production process. Freight cars containing bulk shipments of the raw materials pull up on a spur at the rear of the storage and mixing building, where the materials are unloaded by a power shovel. A bucket conveyor system then hoists them to the top story and pours them on a conveyor belt from which the materials are dumped into bins by a series of distributing devices. Photograph No. 1 shows the power shuttle tripper employed for this purpose, and also the dust collector system used at this stage of the process. These bins have a combined capacity of fifty carloads.

Distribution of Materials

From these primary storage bins, the bulk materials flow by gravity to the production floor as required. The discharge gates in the bottom of the bins, shown in Photograph No. 2, are located directly over a track on which an electric batch car travels. Additional provisions for dust collection are provided here. The

batch car is divided into compartments, each of which is ingeniously slotted so as to correspond with a series of projecting lugs on the hoppers, thus providing an automatic selection which makes it impossible to get the wrong material in any compartment of the car.

Quantity Control

Photograph No. 3 shows the sunken, automatic recording type scale over which the loaded car now moves. At this point the materials are accurately weighed, one by one, to insure the proper make-up for each batch. This photograph also gives a partial view of the auxiliary storage bins.

Parallel Production

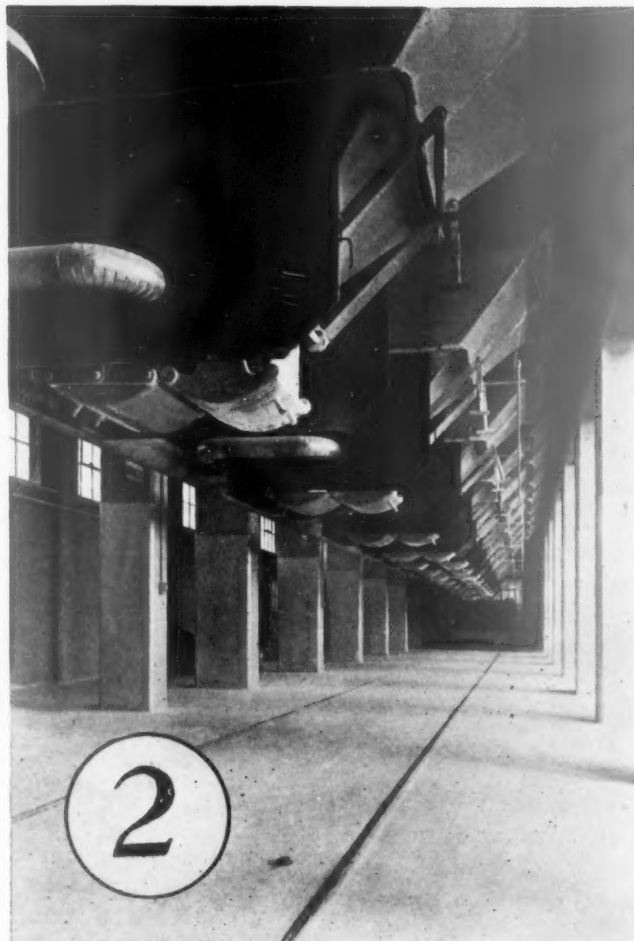
At this point, two distinct production lines begin—one for black enamels and one for white. On these two lines, the materials follow separate but parallel courses through every succeeding operation. There are two hoppers in which the materials are weighed, both activating the same scale. Two skiphoist cars beneath the scale hoppers carry the materials on a quick, steep ride to the mixing machines, where they are thoroughly mixed preparatory to the charging of the smelters. From these machines, each mixture is dropped on its own inclined, canvas-hooded conveyor that runs to the level above the smelters and again makes possible gravity operation. The parallel nature of this process is well illustrated in Photograph No. 4, which shows the pair of vane feeders where the two mixes are fed on the continuous conveyors to be transported to the smelter charging floor.

Charging the Smelter

Photograph No. 5 shows the next stage in the process. Tall dump containers are filled with the mixtures, now ready for smelting, and are carried by an overhead power tram into position at the loading holes of the smelters.

Smelting

The new continuous smelters appear in Photograph No. 6. Here the materials are transformed into a molten mass of glass. At the discharging mouth of the smelter, a steady stream of this molten glass pours into a quenching bath and is converted into the frit, which is collected in a cylindrical basket, under the water of the quenching bath. This basket is divided into a series of wedge-shaped compartments. As each compartment is filled with frit, the basket turns automatically, presenting another of the compartments to receive the product. When the basket is entirely full, the frit moves out of the water and is carried on a floor conveyor to the final operations, which consist of drying, magnetic separation, and final inspection. The product is then automatically weighed and bagged, and goes to the warehouse, ready for shipping.



PURCHASE COST ACCOUNTING

as a method for evaluating the efficiency of Purchasing

R. STANLEY FIELD

THE PURCHASING DEPARTMENT of an industrial organization is usually entrusted with the function of acquiring raw materials and supplies of a specified quality in economic quantities at a fair price and of keeping them available to meet the requirements of uninterrupted operations.

From this definition of the purchasing function, it can be seen that it is a form of service to the production, and, in turn, to the sales department. Without responsibility for the purchasing function, no company could operate effectively. Because of the vital importance of this department to the operations of any industry in supplying materials for production, it should be subject to some control by the general management. For the purpose of control, the various activities of the purchasing function must be capable of being evaluated.

The factors by which the efficiency of the purchasing department (which includes all of the purchasing function) could be measured, are known, but it is difficult to try to evaluate them. One must recognize the diversity of activities which are carried on by the purchasing department to understand why they cannot all be measured in a similar manner.

In the literature upon the subject of measuring the efficiency of the purchasing department many schemes have been presented. The suggestion of the use of financial cost accounting procedure and the account form for statistical and

control reports has not seemed to be considered. An attempt will be made in this paper to see how far cost accounting procedure can be applied to the problem of measuring the efficiency of the purchasing department.

In collecting the costs for various activities, recognition must be given to the fact that only homogeneous items can be combined. Rates, expenses, gains and items cannot all be treated as though they had a common denominator and were of equal value. By separating four activities of the purchasing function, the items which can be measured on a dollar value basis can be considered in applying cost accounting methods to the control of purchasing department efficiency. Statistical facts, concerning the number of purchase orders placed, the size of the purchasing department or the stock turnover rate, can be only qualifying data to help in the managerial interpretation of the final efficiency rating figures.

The four types of activities which can be segregated in regard to the purchasing function are:

1. Operating the Purchasing Department.
2. Purchasing Materials and Supplies.
3. Keeping Materials Available for Production.
4. Suggesting Means of Improvement and Economy.

For each of these activities costs can be accumulated in different ways. Since such costs will necessarily be of varying accuracy, they should be accounted for separately and

combined only in a final summary report.

In setting up an accounting procedure to account for the efficiency of the purchasing department's activities, a series of financial, as well as statistical accounts, should be established and their balances closed out to a control account which will give a picture of the efficiency of all activities of the purchasing department. The standards of performance for each activity and the nature of the accounts to be used for this purpose will explain the operation of this purchasing cost system.

In the first place it is necessary to decide what factors are measurable, and whether intangible items should be included in setting a standard measuring rod for the purchasing function. Many accountants insist that intangible factors, such as vendor good-will, cooperation and interdepartmental coordination are important in determining the efficiency of the purchasing function. It is insistence upon this stand which has led accountants to give up the job of measuring the efficiency of the purchasing function. In accounting for production and marketing efficiency, the factors of labor distrust, soldiering, employee loyalty, or the creation of good or ill will among customers and competitors were not allowed to baffle cost accountants in the accomplishment of their purpose. The intangible factors involved in carrying out the purchasing function would seem to have the same relative importance as they would for marketing, where contacts are also made with outside

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forces. The factor of department cooperation and interdepartment coordination should likewise be disregarded in attempts to measure department efficiency, since these factors are to be expected in the performance of any department's duties.

Having disposed of any consideration of measuring the intangible elements of purchasing efficiency because of their doubted value, it is now necessary to determine how best to account for the tangible elements in operating the purchasing department in order to set up a reasonable standard of performance.

Accounts and Standards

It is suggested that cost accounting procedure be applied to the four activities which were listed above. To account for the expenses of operating the purchasing department, an account called "Purchasing Department Expense Account"

will be set up (Exhibit I). To determine the efficiency of the purchasing department in purchasing materials and supplies, a record of price differences between cost paid and price at which materials are charged into production will be kept on "Perpetual Inventory Cards" (Exhibit II), and summarized monthly into a "Material Variation Account" (Exhibit III). These two accounts deal with actual dollar figures in the financial records of the company and represent actual costs by which the department can be measured.

To keep a cost record on the efficiency of the purchasing department in keeping materials available for production, an account called "Loss and Error Account" (Exhibit IV) will be set up. For recording savings resulting from suggested means of improvement and economy an account entitled "Estimated Savings Account" will be set up (Ex-

hibit V). Since loss and error, as well as savings, may not be accurately measurable in many companies, and may amount to large sums at times, they can be regarded as statistical accounts primarily for the purpose of indicating efficiency or inefficiency in the fulfillment of part of the purchasing function. If the dollar value of these last two categories of expense and gain can be definitely determined in any company which might use this system they could be used in the actual financial records for the purchasing department.

By establishing standard performance figures for each item in these accounts, the purchasing director would have a measuring rod by which to evaluate his own task and the performance of it.

The standards of performance may be based on average past performance figures or on budgeted expenses. In either case, the standard can be used only to measure the operations over which the purchasing department has control. Arbitrary standards may be set up to measure variations from ideal or average situations for those items which are not measurable accurately for the purpose of setting a goal at which to aim. A danger which lies in the establishment of standards only on past performance is that inefficiencies of the past may be perpetuated. Therefore, managerial interpretation and a comprehension of the scope of the purchasing function is needed in setting standards of performance.

The summary balances of these four accounts would provide data for a "Purchasing Department Control Account" (Exhibit VI) to be sent to the general executive for the purpose of checking the efficiency of the purchasing department.

Operating Costs

The "Purchasing Department Expense Account" records the actual dollar costs of operating the activities of the purchasing function. This account records the main items of expense broken down into their component elements. These main

EXHIBIT I	
Purchasing Department Expense Account	
DEBITS	CREDITS
General Office Expenses	Purchasing Department
Executive Salaries	Control Account
General Office Overhead	
Administrative Expenses	Purchasing Department
Salaries	Control Account
Wages	
Travel Expense	
Rent (heat, light & power)	
Furniture and Fixtures	
Stationery & Supplies	
Tel. & Tel., Postage	
Miscellaneous, dues, etc.	
Subscriptions, conventions	
Stores and Inventory Expense	Purchasing Department
Salaries	Control Account
Wages	
Receiving	
Inspecting	
Handling	
Clerical	
Rent	
Insurance, Taxes	
Interest on stores investment	
Loss from depreciation, theft	
Obsolescence, deterioration	
Research Expense	Purchasing Department
Salaries	Control Account
Supplies	
Wages	
Equipment	
Scrap Material Expense	Purchasing Department
Conditioning	Control Account
Wages	
Handling	
Loss on Sales	
Purchasing Department Control Account	Gain from Scrap Sales

EXHIBIT II

Perpetual Inventory Record

RECEIVED					ISSUED					BALANCE	
Purch.	Quan-	Cost		Prod.	Quan-	Market				ON HAND	
O. No.	Date	tity	Price	Total	O. No.	Date	tity	Price	Total		
327	4/22	30 dz	.10	36.00	1291	4/24	10 dz	.12	14.40	28 dz	
					1324	4/28	8 dz	.13	12.48	20 dz	
408	4/29	10 dz	.11	13.20	1403	4/31	22 dz	.11	29.04	0 dz	
	4/31	Balance to Material Variation Account		49.20						55.92	
				6.72							

(The figures are merely examples to show the use of this card.)

EXHIBIT III

Material Variation Account

DEBITS		CREDITS	
Perpetual Inventory Record ITEM—		Perpetual Inventory Record ITEM—	
(Purchase Expense or loss due to market price being lower than cost.)		(Purchase Gain or Savings from market price being higher than actual cost.)	
Balance	OR	Balance	
to Purchasing Department Control Account			

items are: General, Administrative, Stores, Research, and Scrap Sales expense. The actual dollar costs for these items are determined from payroll accounts, expense sheets, supply requisitions and overhead allocation sheets, and can be entered for the period of a month (or any other period). The total credit balance from this account would represent the actual costs for running the purchasing department. Since each item of expense is valuable as a control figure, the net balance for each item would be closed out to the "Purchasing Department Control Account" as a charge. The balance difference resulting from Scrap Sales gains would constitute a credit entry to the "Purchasing Department Control Account."

Since all of the expenses of operation have been recorded as such in previous years, it would be a fairly easy matter to set up standards for these expenses on the basis of average costs for previous years. To make such "average" standards more accurate, they should be

modified by the purchasing director's judgement after considering such factors as the size of the purchasing department, the volume of purchases, the price trends, and the number of purchase orders placed. If the company operates all departments on the basis of a budget, the standards can be determined from the budget itself.

The items of expense in this account cover all of the activities of the purchasing function. General Office expenses are allocated to this account on an equitable basis with all the other functional and management departments. Administrative expenses include salaries, wages, travelling expenses, rent, supplies and equipment, and miscellaneous items such as dues, subscriptions, convention costs, etc. Included under Stores and Inventory Expense is the cost of receiving and inspecting, because they are closely allied to the stores activity and are definitely a part of the purchasing function. Some companies include these items of cost under Manufacturing Costs, but if all costs of per-

forming the purchasing function are to be controlled, the items of receiving and inspection should be kept in this expense account. The regular costs of handling, clerical work, rent, insurance, and taxes are also included in this classification of Stores and Inventory Expense. Interest on investment in stores is included as an expense as a check against carrying too large inventories and as a legitimate cost of using the company's working capital in a profitable manner.

Losses from depreciation, obsolescence, spoilage, natural shrinkage, and theft are bound to occur in some degree in all companies and this fact must be recognized. However, this item is a good measure of the efficiency of the purchasing department in keeping inventory at an economic level. The inclusion of inward freight as an expense under stores and inventory expense is suggested for the purpose of reducing the amount of accounting work which would be necessary if freight costs were added on to the material costs, as they were received into stores. For control purposes later, when material is issued from stores, the difference between cost and market might be desired for determining efficiency of purchasing. This item does not include freight costs on returned goods due to purchasing department errors.

Since the function of a Materials Research Department is to aid the purchasing department in selecting materials and sources of supply, its expenses should be included in the "Purchasing Department Expense Account." If the purchasing department has charge of preparation and disposal of scrap and waste, it should be charged with the expense of conditioning scrap for disposal, and credited with any profits on the sale of such scrap.

Cost of Materials

"Perpetual Inventory Record Cards" will record the materials received at actual cost. The material issued will be priced at the lowest market price of the last day on which the materials could have been bought and their delivery as-

sured in time for production. The difference between the cost and the market prices, or between Received and Issued value, would be summarized from these cards in the "Material Variation Account." The debits or charges to this account would be the losses suffered from not buying favorably, or when actual cost was greater than the market on the day such material was priced as issued. The credit entries to this account would represent the gains resulting from efficient purchasing, or price forecasting when actual costs were lower than the market prices on the day that material was priced into process.

Each Perpetual Inventory Record Card for the main items only, on which this cost control is operating, would be balanced once a month and would provide either a debit or credit figure for the "Material Variation Account." In this way the status of price for each item purchased would be recorded monthly and be known to the purchasing director. If an item continually was being bought at a loss, this account would bring the fact to the director's attention. If the number of items controlled in this way were small, this account could furnish the data for the maintenance of cost charts for the purpose of observing trends and timing purchases.

The market price to be used for pricing material issued from stores, as of the day the last order for materials could have been made and delivery received in time for production, is recommended because it allows the accurate measurement of differences between actual cost and manufacturing cost. A standard price for putting materials into process for mass production or straight line producers might be more satisfactory from the manufacturing cost angle, however.

Standard costs for material is an averaging method of costing, which, because of price fluctuations and different volumes and types of materials used from year to year, could not accurately measure the purchasing department's efficiency. Although the use of this market cost would not do away with the "Manu-

EXHIBIT IV	
Loss and Error Account	
DEBITS	CREDITS
Factory Shut Down Expense Factory Delay Expense Returned Goods Expense Loss on Resale Conditioning Expense for using wrong material in Production (Extraordinary Losses from Specula- tive Buying)	Balance to Purchasing Department Control Account

EXHIBIT V	
Estimated Savings Account	
DEBITS	CREDITS
Balance to Purchasing Department Control Account	Suggestions for improved methods claims of savings Substitution of new or better ma- terials savings (Extraordinary Gains from Speculative Buying beyond the com- pany's needs)

facturing Materials Variation Account," which would alter the cost control system for production, it would not require much complicated clerical work. The actual cost would be recorded on the "Perpetual Inventory Record Cards" and a continuous record of high and low market prices, which would be kept anyway by the director of purchases, would be the basis for pricing materials as it was issued from stock. A standard delivery time requirement could be used for each item so controlled for use in costing materials issued at so-many-days-ago's price.

Only the main items purchased by the company for production purposes would be subjected to this control. The determination of what is the true market price may be difficult with items for which there is no open market, or which are purchased at special prices from subsidiaries, by contract or as a monopoly. For industries where the great bulk of purchasing is done

in these ways, this system would not be applicable.

Keeping Materials Available

The "Loss and Error Account" is provided to record losses due to errors on the part of the purchasing department. Losses may be caused by many types of error. The clerical error may be remedied before commitment is made. However, if such an error is not avoided and the wrong amount, the wrong item, or the wrong delivery date causes delays in production, the purchasing department should bear any expense which this conduct necessitates. Losses occurring from patronizing unreliable sources should be charged to this account.

Even if the plant is forced to shut down as a result of poor purchasing activities, the whole cost should be charged to this "Loss and Error Account." Although this large expense may seem unwarranted, it is a penalty which is proportional to the importance of the error. When

the loss is due to wrong specifications by some other department, and the purchasing department has failed to check on such items, the cost should be allocated to both departments. The cost of transporting returned goods to the vendor, if it has to be paid by the company, should be charged to this account. If materials cannot be returned, but must be resold, any loss on resale should be borne in this account. If resale items provide a gain or profit to the company, they should be credited directly to a Profit and Loss account, and not to this "Loss and Error Account." In this way, there will be no incentive for the purchasing department to engage in such resale activities for the purpose of making a profit or of "sweetening" its record by reducing the net cost of errors. The cost of reconditioning materials of the wrong specifications so that they can be used anyway, in order to avoid shutdown of the plant, should be charged to this "Loss and Error Account" since this cost also represents a failure on the part of the purchasing department to have materials available for uninterrupted operation of the plant.

The credit balance in this account would become a charge to the "Pur-

chasing Department Control Account" at the end of the month. The standard, of course, for these costs would be zero since the efficient purchasing department should not permit such costly errors to happen. The record of such errors is a great factor in determining the efficiency of the purchasing department. Because the costs may be very high in any one period, due to the fact that such delays do happen only occasionally, these costs should not be combined directly with the other department and purchasing costs because they would have the power of altering the efficiency ratio of the purchasing department unduly. If the costs can be known definitely, however, they may be used with the other expenses and carried on the financial books of the company as charges to the purchasing department.

Credit for Suggestions

The "Estimated Savings Account" will record credits to the "Purchasing Department Control Account" because it represents gains instead of losses or expenses. This account will have to be used mainly as a statistical record, because as the name implies, the values recorded in this account can be, at

most, intelligent estimates. Since the costs of research are definite and the effects cannot be measured so definitely, these estimated savings could not be offset against research expense in an account for that department.

Extraordinary gains from speculation and forward buying far beyond the company's needs might be placed in this account, although in accounting for gains and losses on material purchases, speculative prices might have to be considered in the cost price figure for materials in stores.

Efficiency Report

The "Purchasing Department Control Account" is the summary record for executive control purposes and is the yardstick for the measurement of the efficiency with which the purchasing department has carried out the purchasing function. In this account form of report to the executive the debits or charges represent the expenses of purchasing while the credits represent gains from efficient operation. All of the figures in this account record the efficiency of the purchasing department in each of its major activities.

The items of General, Administrative, Stores and Inventory, Research and Scrap Sales expense represent legitimate costs of operating the purchasing function. The items of Interest on Investment and Losses due to Depreciation, Spoilage, Obsolescence, Shrinkage and Theft are control items only for the purpose of keeping a check on the money invested in inventories and the amount of materials shrinkage which may indicate that items are left in stores too long, as a result of buying in excessive amounts. These costs are part of the expense of keeping inventory of materials at a point where material is always available for production, without interruption. Avoidance of inventory losses and the smallest investment possible of working capital are part of the department's duties.

Since Scrap Sales gains are a re-

Continued on page 46

EXHIBIT VI								
Purchasing Department Control Account								
DEBITS	Actual		St'd		CREDITS	Actual		St'd
	\$	%				\$	%	
Purchasing Dept. Expense:								
General Office Expense								
Administrative Expense								
Stores & Inventory Expense								
Research Expense								
Scrap Material Expense								
Total:								
Material Variation:					Material Variation:			
Losses—					Gains—			
Total:								
Loss and Error Expense:								
					Estimated Savings			
Balance			OR		Balance			
Efficiency below 100%					Efficiency above 100%			
Additional Statistical Data to help in judging the efficiency rating, above.								
Number of Purchases for the Month.....								
Number of Persons in the Purchasing Department.....								
Size of Raw Materials Inventories.....								
Raw Material Inventory Turnover.....								



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UNION COLD



★ ★ ★ *And Here is How it Happened!*

Dissatisfied with the quality and cost of his screw machine parts, a manufacturer of business machines decided to conduct a thorough investigation.

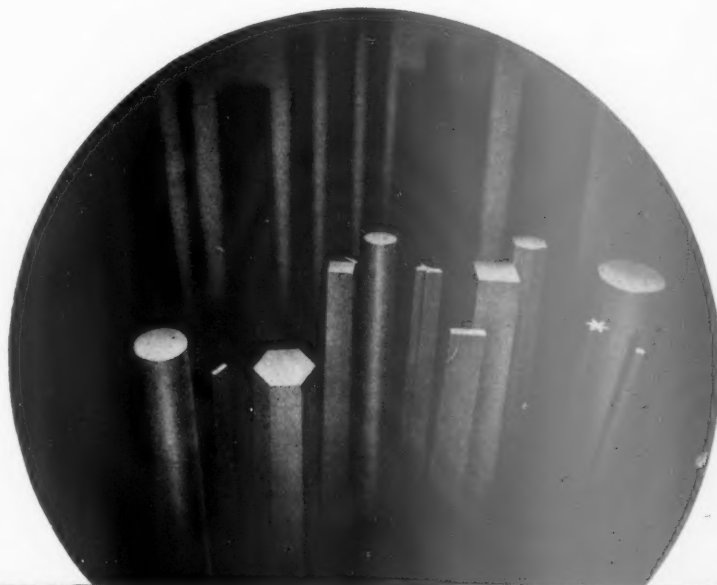
He advanced speeds and feeds to full capacity. He experimented with cutting oils and changed to the best oil obtainable. Both proved helpful—but the manufacturer felt that further improvements could be made—so he called in a Union Drawn Field Service Man.

Working together, they redesigned the cams, simplified and systematized the set-ups, and changed from ordinary screw machine stock to Union Cold Drawn bars.

The results of all of these changes were beyond all expectations. Production was increased as much as 300% on some items. On one part, 54 hours time was saved in producing 7,000 pieces. On another part, 100 hours were saved on 12,000 pieces. Costs on certain parts dropped better than half. In a short time, the savings effected paid for the new cams and tools; from then on, they became profit for the manufacturer. And, as usually happens when a change is made

to Union Cold Drawn Steels, the parts showed a much better finish.

Are your machines delivering the full capacity of which they are capable? Are your set-ups as simple as they might be? Are the steels you are using the best for each particular job? If there is the slightest doubt in your mind on any of these questions, ask us to send a Union Drawn Field Service Man. His recommendations have pointed the way to lower costs, higher profits and better products for others—they can do the same for you. Union Drawn Steel Division of Republic Steel Corporation, Massillon, Ohio.



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THE MARKET PLACE



*A quick review of the market
noting major developments in
supply, demand and prices of
selected basic commodities*

Supply

Demand

Market

BURLAP

A SMALL MINORITY STILL blocks any formal restriction agreement at Calcutta. Nevertheless, production has slowed up under the combined pressure of unfavorable markets and the physical limitations of warehouse space, now crammed to capacity. Stocks are still piling up, but at a less alarming rate than earlier in the year, and most of the large mills are on a 54-hour schedule, reduced from the 108 and 162 hours weekly prevailing only a short time ago. U. S. stocks in June were recorded as 205 million yards on hand and 106 million yards afloat, a total practically equivalent to the requirements of the next six months at current rates of use.

U. S. CONSUMPTION OF BURLAP again dropped sharply in May, to 47 million yards, a decline of more than 20% from the figure for earlier months of the year. Trading in the primary market improved during June, but local demand continues relatively light.



PRICES WERE FIRM during the first half of June, but at levels only slightly above the two-year low recorded in April. In the second half of the month there was a steady advance, amounting to as much as 25 points on some constructions, and reaching a high point for the year in the closing week. This level was not maintained, however, and by the first of July the list had dropped slightly, though still recording a gain of 5 to 15 points for the month.

COAL

OUTPUT OF BITUMINOUS COAL has been scaled down almost to 5 million tons weekly, and for the year to date is about 32% under the 1937 figure. Consumers' stock piles were reduced in May and June, but not to the point where replacement is required.

INDUSTRIAL CONSUMPTION CONTINUES at a low rate. Demand is light and is altogether for immediate use, with no tendency to add to present stocks, which are gradually being cut down at a rate of approximately 4% a month.

THERE WERE NO IMPORTANT price developments in coal during June. A wholesale price advance of 25 cents per ton on anthracite, announced June 1, was rescinded two weeks later. The reduction of the steel list has brought pressure from this industry for lower prices on coke and bituminous, among other raw materials.

COPPER

WORLD STOCKS OF REFINED COPPER on June 1 were up to 554,356 tons, approximately equivalent to the all-time high. The entire advance during May took place in the United States, as foreign stocks actually showed a slight decline. Both domestic and world production were down from previous months, but deliveries were off even more. Drastic curtailment plans put into effect by Anaconda and Kennecott, amounting to 16,000 tons per month, will improve the balance, but the effect of this program will not be fully reflected in the statistics for some few weeks. The international cartel has also announced a cut in production quotas effective July 1, from 105% to 95% of standard tonnages, representing another 7,000 tons monthly.

FOLLOWING A 19,000-TON MONTH in May—the lowest sales volume recorded since the depression of 1932–1933, June sales soared to 90,978 tons in June, one-third of the total business being transacted on the last day of the month. The buying wave was altogether concentrated in the closing week. A feature of this movement was a fresh interest in futures, whereas for some months past purchases have been predominantly for immediate requirements. Armament buying was a considerable factor, with good tonnage going to Japan and Great Britain as well as to the U. S. Navy Department.

THE PRICE OF COPPER dropped one cent in May, to 9 cents, and held steady at that level through the greater part of June, the anticipated price recovery being delayed by the report of heavy stocks in the industry. At the end of June, however, with a determined program to correct that condition, and with a considerable volume of latent demand close to the surface, Phelps Dodge advanced its quotation to 9¹/₄, precipitating a buying wave which gave the market strong support and carried the price to 9¹/₂ cents on July 1, though the bulk of the sales were made at the 9 cent figure. Copper scrap had previously advanced twice during June. Scrap, brass ingots, and casting copper all shared in the general advance.

COTTON

UNFAVORABLE WEATHER CONDITIONS and serious insect infestation during June have retarded the crop, and present indications are for a yield substantially smaller than early estimates—perhaps in the neighborhood of 11 million bales. Stocks of gray goods have been reduced, but finished yardage is up, waiting for delivery instructions. Wholesale and retail inventories are smaller.

IRON and STEEL

IN THE OPENING WEEK of June, steel operations were down to 26.1%, 3 points below the rate of the preceding week and only $\frac{1}{2}$ point above the year's low, of January. Then a steady though slight week-to-week improvement brought operations back close to the earlier rate. Some modification of the usual July slump is anticipated as a result of the revised price list, and the real upturn is now expected to materialize in September, depending on automobile production schedules, with an October peak of something above 40%. Inventory at mills is now less burdensome than earlier in the year, and operations are reasonably in balance with shipments.

LUMBER

LUMBER OPERATIONS, ALREADY greatly curtailed, face a further reduction as a result of extended shut-downs by virtually all West Coast mills over the July 4th holiday period. Output in June was up slightly after the May slump, reaching 58% of the 1929 weekly average, a new record for 1938. Mill stocks of hardwoods are reported as 40% higher than a year ago.

NAVAL STORES

PRODUCTION FIGURES FOR THE 1937-1938 crop season, announced by the Department of Agriculture, show an increase of approximately 10% in both turpentine and rosin output, to 700,331 barrels and 2,561,966 barrels, respectively. The carryover of turpentine is slightly less than a year ago, while rosin stocks in producers' hands are 50% greater than in the last crop year. Consumers' inventories of naval stores have been sharply cut in all of the principal using industries—paint and varnish, paper manufacturing, and soap.

SUBSTANTIAL GOVERNMENT CONTRACTS provided the bulk of business for the first half of the month, but activity broadened in the second half, with a brisk demand for gray cloth, print and combed goods, providing a reasonable backlog for the resumption of more normal operating schedules. In the closing week of June there was also a revival of interest in industrial fabrics.

THE CHIEF CHARACTERISTIC of demand for iron and steel in June was its steadiness. The rate of consumption was low, and there were few evidences of real strength. There was some broadening of interest, but the principal sources from which a real revival may be expected to develop are still marking time. Construction under government loans will not result in actual orders for some weeks to come, and the automobile industry is geared to a fall schedule. Sentiment, however, is noticeably better, particularly in the Detroit area.

LUMBER SHIPMENTS WERE a little higher in June, reaching 57% of the 1929 weekly average. Yard stocks are being held at a minimum. Residential building contracts are holding close to the 1937 level, and a good volume of FHA loan approvals is expected to sustain this rate. The outlook for furniture is favorable.



CONSUMERS CONTINUE TO OBSERVE a hand-to-mouth buying policy such as has prevailed all year except for a brief period in the early spring. While sales are small, they have been fairly steady, enough to support a generally dull market. Export demand has been better for turpentine, less active for rosin.

RAW COTTON PRICES, which had sagged below 8 cents at the opening of June, recovered strongly in the second half of the month on poor crop reports and better demand, reaching a new high for the present movement at 8.85. Cloth prices, which were also down, responded to improved demand and ended the month close to the April quotations.

SCRAP PRICES STRENGTHENED in June, but as a large part of this was due to foreign sales, it was scarcely barometric of the primary market. Indicative of a clearly weak price structure, galvanized sheets were reduced \$3 per ton at mid-month. Then in the closing week, the U. S. Steel Corporation reduced the entire list—including billets and bars, shapes, strip, plates and sheets—from \$2.50 to \$4.50 per ton. Other producers followed suit promptly though reluctantly. Pig iron prices were also down, the reduction being \$3 per ton in the northern district and \$4 per ton at Birmingham.

LUMBER PRICES WERE IRREGULAR in June, in both hardwood and softwood classifications. Southern pine was up to 20.19 at mid-month, but sagged to 19.24 before the end of the month. Oak flooring, off \$2 to 70.00 from May levels, recovered somewhat in the closing week and was quoted at 70.50.

THE PRICE LEVEL OF NAVAL STORES firmed during June but is still considerably below first quarter levels. Turpentine was quoted at 29 $\frac{1}{2}$ cents at the close of the month, for a net gain of 1 $\frac{1}{2}$ cents. The entire list of gum rosins advanced, medium grades showing the greatest gain—50 to 55 cents per barrel—while fine and low grades gained 15 to 20 cents. Wood rosins, tar and pitch were unchanged.

Supply

Demand

Market

PAPER

PAPER PRODUCTION FELL OFF sharply in the first week of June, and subsequent improvement failed to recover fully the former level. Paperboard operating ratios followed a similar pattern, but the range of fluctuation was not quite as broad.

DEMAND WAS ENCOURAGING, particularly toward the end of the month. The outlook for paperboard is regarded as favorable in view of better prospects in consumer goods lines and generally low inventories of paper containers.

PRICES WERE DOWN ON RAG content bonds and ledgers in June; otherwise the paper list was unchanged. Early in the month there was talk of a further reduction in book paper, but sentiment changed and a firmer market is now expected.

PETROLEUM

THE STATISTICAL POSITION of the petroleum industry improved considerably in June as crude production was curtailed below the Bureau of Mines recommendations and stocks were brought well below the 300 million barrel mark. World output is running behind 1937 figures. Gasoline in storage was also sharply down though there are large accumulations held along the Atlantic seaboard. Stocks of gas and fuel oil are high in California.

DEMAND WAS SLUGGISH, but improved toward the end of the month as an active jobbing interest appeared in both gasoline and heating oils. Estimated requirements for July are 3,398,100 barrels daily, or 2% higher than in June. Export shipments continue in good volume but there has been a lull in new sales.

PENNSYLVANIA CRUDE WAS reduced 25 cents per barrel in June. Mid-Continent prices are firmer, with restoration of a portion of the May reductions announced by small refiners. Gasoline emerged from a price shading period and firmed at 6³/₄, up 1/4-cent. Bunker oil and kerosene were sharply reduced.

RUBBER

THE RUBBER EXPORT QUOTA for the third quarter of 1938 has been set at 45%, compared with 70 and 60% for the first and second quarters. This is the lowest point ever fixed and is under the present rate of world use. Domestic stocks are still heavy but are gradually being reduced, and dealers' stocks in the Far East are lower.

CONSUMPTION OF RUBBER IS undergoing a marked shift. Currently world use outside of the United States, rather than American consumption, is likely to be the deciding market factor. Domestically, tire manufacture, which represented nearly 85% of all rubber use only ten years ago, now accounts for less than 75%, more than one-fourth being absorbed by other lines of manufacture.

WHILE THE EFFECT OF DECREASED quotas was not immediately apparent in prices, a strong wave of factory buying, later augmented by active speculative interest, sent quotations rocketing. From 11³/₈ cents at the beginning of June, spot rubber climbed to 12³/₁₆ at mid-month, and then with increasing momentum went on to 14³/₄ before the end of the month, holding its gains well.

TIN

WORLD'S VISIBLE TIN SUPPLIES were sharply down in May, to 19,660 tons, with carryover also well under former tonnages. The formation of some sort of a buffer pool seems assured though Siam has not agreed to the proposal of setting aside 10% of current quotas pending a better market. Third quarter export quotas are down to 35% as compared with 70 and 55% for the first two quarters of the year.

WORLD USE OF TIN IS RUNNING more than 20% behind 1937, U. S. consumption being presently at a rate of slightly more than 4,000 tons monthly. Trading was brisk in June, chiefly by dealers and importers on the basis of restricted supplies available after July 1, as well as the speculative price rise.

TIN PRICES WENT FROM 36³/₄ cents to 40³/₄ in the first three weeks of June on early reports of a 45% quota. Following the announcement of even more drastic action, prices jumped to 42.90 in the final week and closed the month at 42.60. No price goal has been announced by the buffer pool as the proposed "peg" for tin prices. The European market is notably buoyant.

ZINC

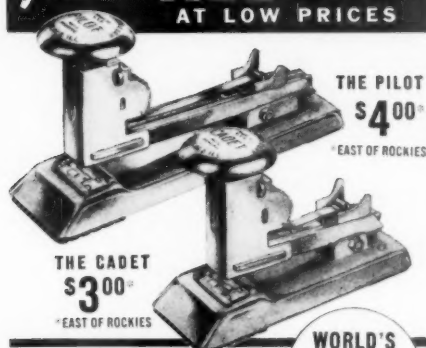
SURPLUS STOCKS OF ZINC were at an 8-year high at the beginning of June. A sharp slash in ore production to less than 4,000 tons weekly was fairly in balance with shipments.

THERE WAS A BRIEF SPURT in zinc purchasing early in June, but the seasonal peak for agricultural uses passed without any notable effect. Unfilled orders are now below 24,000 tons. The price increase checked buyer interest.

THE PRICE OF SLAB ZINC followed increases in lead quotations during June for a net gain of \$10 per ton, in three stages, to the level of 4¹/₂ cents a pound. Ore prices are up to \$29-\$30 per ton.

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U. S. Requirements of Wood Pulp

Though meeting about two-thirds of total requirements from domestic production, the United States is the most important buyer of wood pulp in the international market. Last year, imports amounted to 2,130,000 tons; while Great Britain, the other leading importer of wood pulp in the world, absorbed 1,780,000 tons. About half the U. S. import demand was covered by Canada, no less than 1,085,000 tons of whose total wood pulp exports of

1,190,000 tons went to the United States. For her remaining supplies the United States remained dependent upon Europe. Naturally the decline in American consumption that has been the outstanding feature of the international paper and pulp market in recent months has been felt most severely in Canada. According to the latest statistics available, the U. S. consumption of wood pulp is now little more than 400,000 tons monthly, as against over 500,000 tons at the same time last year, while imports

during the first quarter of this year amounted only to 335,000 tons, compared with 510,000 tons in the corresponding period of 1937. This decline has not yet been fully felt by European producers, as British imports of wood pulp have continued to increase, those for January-April having been 105,000 tons in excess of those for the corresponding period last year. The overwhelming importance of long-term contracts in the trade presents a prompt adjustment of shipments to fluctuations in requirements.

PERSONALITIES in the NEWS

HOWARD W. ELKINTON, for more than ten years associated with the purchasing department of the Philadelphia Quartz Company, and a past president of the Philadelphia Purchasing Agents Association, resigned June 30th to take up his residence in Berlin, Germany, for two years with the American Friends Service Committee.

ERNEST H. HAWKINS, Purchasing Agent for E. I. du Pont de Nemours Company, Wilmington, Del., addressed the annual alumni dinner of the College of Business Administration, Syracuse University last month tracing the history of that company from a single black powder mill in 1802 to an organization of 81 plants in 27 states, employing 45,000 persons.

JOHN W. BARNETT has been appointed purchasing agent for the University of California at Berkeley, succeeding the late Norris Hovey. Mr. Barnett has been in the service of the University for 23 years, including 18 years as purchasing agent for the University Hospital and professional schools in San Francisco.

HARRISON PARKMAN, General Purchasing Agent for the U. S. Post Office Department, last month addressed the convention of the Kansas Branch of the National League of District Postmasters at Ottawa, Kansas, the Kansas State Editorial

Association at Topeka, and the New York State League of District Postmasters at Utica.

DONALD A. WILSON has been named General Purchasing Agent of the Canadian Westinghouse Company, Hamilton, Ont., succeeding C. A. HUNTER, who has retired after forty-eight years of continuous service with the company. Mr. Wilson has been with Westinghouse since 1904 and has for several years held the position of assistant purchasing agent. He is a charter member and past president of the Hamilton Purchasing Agents Association, and a past chairman of the Canadian Council. P. A. WALKER has been appointed assistant purchasing agent. Mr. Walker has been in the purchasing department for nineteen years, serving in the capacity of customs attorney.

H. LYLE AUSTIN, Purchasing Agent of the San Jose, Cal., plant of the Food Machinery Corp., has been elected to the City Council.

H. PHILIP RECHER has been appointed city purchasing agent at Hagerstown, Md., for a six months probationary period.

E. A. CLIFFORD, General Purchasing Agent of the Chicago & North Western Railroad, has been elected president of the Western Railway Club, Chicago.

WILBERT B. ANTEAU, for the past 25 years purchasing agent for the American National Co., Toledo, has taken a leave of absence, effective July 1st, to assume the presidency of the Kings Tavern Brewing Co., at Flint, Mich.

JOHN J. KEMENDO has resigned as city purchasing agent at Dallas, Texas, after twelve years of public service, to enter private business.

ROBERT M. PRICE, Purchasing Agent of the Package Machinery Co., Springfield, Mass., has been named assistant superintendent of the company in addition to his purchasing duties.

RICHARD W. WILLIAMS, Purchasing Agent for W. F. Trimble & Sons, Allegheny, Penna., this month rounds out fifty years of continuous service with that organization.

J. E. WALTERS, Purchasing Agent for the Hill Grocery Co., Birmingham, is a member of a special committee appointed to study the efficiency of the business methods and property maintenance of the School Board in that city.

B. F. DILLARD has been appointed purchasing agent for the City of Greenville, S. C., in addition to his duties as city clerk and treasurer.

ANDREW H. PHELPS has been appointed General Manager of Purchases and Traffic for the Westinghouse Electric & Mfg. Co., East Pittsburgh, succeeding T. J. PACE, who becomes Assistant to Vice President in charge of sales.

EDWARD W. THORNLEY, for many years assistant purchasing agent of the Baltimore & Ohio Railroad, and more recently purchasing agent and vice president of the American Smelting and Refining Co., has been elected a director of Revere Copper and Brass, New York.

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Branch Offices and Representatives in Principal Cities

ROY L. JOHNSON, Purchasing Agent for the National Life Insurance Co., Montpelier, Vt., addressed a recent meeting of insurance company executives at Hartford, Conn.

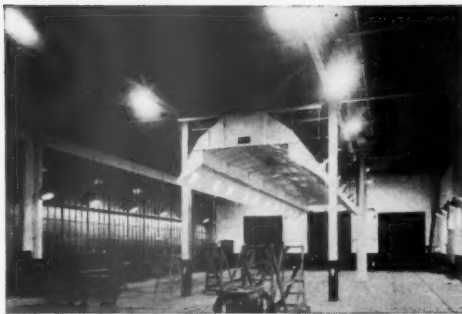
WALTER Y. TRETHAWAY, Purchasing Agent for San Joaquin County, Cal., addressed the Sacramento unit of the Public School Business Officials Association last month.

RAYMOND D. COPELAND has been appointed purchasing agent for the Pittsburgh district of the Bethlehem Steel Corp., succeeding R. W. GAMBS, who becomes purchasing agent of the Chicago district.

WARREN W. KELLY has been appointed general purchasing agent for the Santa Fe System Lines, succeeding the late John J. Conn. Mr. Kelly is a graduate of Washburn College and Rose Polytechnic Institute. He has been in the engineering department of the Santa Fe for more than thirty years, and prior to his new appointment was serving as chief engineer of the Western Lines at Amarillo, Texas.

NORMAN FISHER has been appointed purchasing agent for the School Department, City of Buffalo, N. Y., succeeding JOHN F. BOEHM, who retires from active service August 1st. Mr. Fisher has been in the department since 1924, as a buyer.

F. ALBERT HAYES of the American Hide & Leather Co., Boston, will present a paper on purchasing policies, and EDWARD T. GUSHÉE of the Detroit Edison Co. will present a paper on purchasing methods, before the International Management Congress meeting in Washington in September. This is the first meeting of the Congress to be held in the United States, and the first time that purchasing has been included in the program. THOMAS D. JOLLY, Director of Purchases and Research for the Aluminum Co. of America, Pittsburgh, is a member of the program committee.



Both the photo to the left and the one below show examples of good lighting in the Indianapolis Railways, Inc., service shops.



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The small photo shows a section of the shops where street cars are washed and painted. Here the general lighting units and the angle reflectors along the walls each contain one 250-watt mercury lamp and three 100-watt MAZDA lamps. Floods containing 300-watt MAZDA lamps are directed through square openings in the canopy to illuminate a car while it is being painted.

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Safety Appliances for Attachment to Existing Machines

Investment in safe working equipment to reduce the hazard of accidents is wise and profitable expenditure. Here are a variety of appliances that may improve present tools in this respect

FRANCIS A. WESTBROOK

Consulting Engineer

A GOOD GENERAL IDEA of the relative importance of the sources of industrial lost-time accidents may be gained, from the records of the Massachusetts Industrial Accident Reduction Contest for 1936. Two hundred forty-one companies, representing sixty different types of industrial activity, took part in this contest, so that the following figures give a fair average of the distribution of accidents. This analysis follows:

Handling of objects	21.6%
Strains or sprains	17.5
Falls	15.9
Machinery	10.3
Stepping on or striking against objects	8.2
Explosions; fires; hot, poisonous or corrosive substances; electricity	8.1
Falling objects (not being handled by the injured)	5.6
Vehicles (including hand trucks)	4.6
Hand tools	3.6
Flying particles	2.5
Miscellaneous	2.1
	100.0%

Obviously some of these causes can be met only by educational and training methods. With respect to others, mechanical methods, or a combination of mechanical and educational methods, are the important consideration. There are a good many varieties of safety equipment on the market which have been designed for various purposes. One group of these includes gas masks, safety footgear, goggles, and a variety of protective apparel to be worn by the operator. Another group consists of guards and attachments for machines, to reduce the hazard of accident. In the present article we are particularly concerned with the latter appliances.


One of the most significant figures in the above analysis is the very low one of 2.5% for "Flying particles." It is due, of course, to the increasing use of goggles and shields. Perhaps the improvements in shields and the methods of attaching them to machines so that the latter cannot be used unless this form of protection is effective, are the big factors in this situation.

There are three types of shields for the eyes which may be attached to grinders, lathes, milling machines, spot welders, electrotype saws, routing machines, and woodworking machinery. They may be of three types—rigid, adjustable, and illuminated. All are made of non-shatterable glass, and all are provided with the necessary attachment features whereby they may be readily mounted on the machine.

The rigid type is particularly advantageous for grinders which are used only occasionally, because the shield is always in place and there is no question about the workmen being subject to eye injury because they neglect to put on goggles. The glass shield is installed in such a manner that it is always in the line of vision and cannot be moved away. This, however, does not mean that slight adjustments in the setting of the shield cannot be made for varying conditions of light and work. In order to do away with the disturbing effect of vibration the shield does not have any rim.

Another type of shield is held in a frame supported on the end of a flexible arm which can easily be set in any desired position by hand without the use of tools, much like adjusting a desk light on a flexible arm. The arm may be attached to some part of the machine, to a pillar, or any other convenient object where there will be a minimum of vibration. The point of this is to have a shield which is so easy and convenient to use that there is no temptation not to use it.

The illuminated type of shield is designed for conditions where lighting is of particular importance, either because the location of the grinder is such that the light is normally poor or because of the character of the work. In this case the frame is large enough to provide for lighting bulbs on the under side of the glass so that there will be no uncomfortable reflections, and so that the light will fall with an intensity of 100 foot candles on the front and both sides of the grinding wheel. The shield is made of non-shatterable glass with a plain



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glass on the under side to receive the impact of the flying particles. This may easily be removed and replaced when its visibility becomes impaired from pitting and the abrasive effect of intercepting the dust and sparks from the grinding wheel. There are two designs for this type of shield—one for work where there is not much vibration, and another more rugged type with polished reflectors for rough service bulbs for heavy grinding. The shield may be adjusted as to its distance from the work by an upright rod, so as to provide for the desired intensity of light and for convenience in handling the work. For the heavy work, a light intensity of 115 foot candles is provided for.

There are two other well standardized safety appliances for grinding wheels which should not be overlooked. They are the so-called grinding wheel washers and the hoods. The washers consist of metal discs with sheet rubber applied to one side. The wheel is clamped between two of these washers with the rubber in contact with the wheel. When the outside recessed steel flanges are tightened, the rubber is pressed into the porous surface of the wheel, which transfers the centrifugal stress of the rapidly revolving grinder to the metal washer, thus greatly reducing the danger of the breaking of the wheel. It is obvious that the larger the diameter of the washers, the greater is their effect in reducing the stresses in the structure of the wheel, which is of especial value when the indeterminate stresses from actual grinding operations are brought

into play, particularly in heavy grinding. For this reason the manufacturers recommend that the washers be 60% of the diameter of the wheels where the latter are 16" in diameter and 75% of the diameter for larger wheels. When properly applied, these washers will also prevent broken pieces of wheel from flying out from between them.

The other grinding wheel safety appliance referred to, the hood, is of course not new in principle. Many users make their own, or have done so in the past, but there are very satisfactory ones on the market. A very practical kind is one with adjustable upper and lower lips, by means of which the size of the opening between them may be closed as the wheel wears down, or the opening may be increased for extra large work. One side of the hood may readily be removed by unscrewing the nuts when it becomes necessary to change the wheel. When ordering these hoods it is necessary to give the thickness and diameter of the wheel, the thickness and diameter of the collar used with the largest wheel, the diameter and length of the arbor projection, and whether it is for right or left hand installation when facing the front of the machine. Stands for hoods are designed to avoid vibration and may also be purchased as separate items. When ordering stands, the data should include whether there are one or two wheels, and, if only one, whether it is on the left or right side, also the distance from the floor or bench to the center of the shaft.



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There are machine guards available for several kinds of machine tools. Punch presses, because of their inherent characteristics, have naturally come in for a good deal of attention. Their installation is simple and they may be said to be effective. One type which has proved to be very satisfactory provides double protection. That is, it consists of two elements. One part of the guard sweeps across the danger zone well ahead of the descent of the ram and pushes the operator's hand gently but firmly out of the way. The other, stationary part prevents the operator from getting his hand in back of the sweep. The sweep is actuated by the plunger of the press and even if this drops unexpectedly due to a defect in the machine, the breaking of the king pin, or some inadvertent or careless action of the operator, it will push his hand out of the way just the same. The installation of this type of guard is extremely simple and inexpensive and is adaptable to almost any press with a stroke of from 1½" to 8".

Another type of guard has been developed especially for feeding strip stock. One of these consists of an adjustable enclosure which is stationary, and made in the form of a sliding gate barrier in front with projecting bars on the sides. It is attached to one of the gib bolts, can be used with practically any die, and is easily removed for adjustments. The work can be seen plainly through the bars.

Guards have also been developed for foot presses which are similar to the one already described as having

a sweep. They are designed to push the hand out of the danger zone and to prevent the idle hand from getting into it. For this service the sweep has a finger attached to it which passes under the plunger as it descends in order to push the fingers away. This protection for the fingers is particularly necessary for foot presses on account of the smallness of the work, the short distance between the punch and the die, and the speed of production with this class of work. When ordering these guards it is necessary to supply the maker with the distance between opposite gib bolts, the distance from the face of the slide to the face of the gib, the distance between slide cap studs, the stroke of the slide and the make and number of the press.

Some very interesting and practical guards have also been developed for installation on wood-working machinery, which are well worth noting. Adequate guards for saws have been designed which afford very complete protection and embody some ingenious features. A brief description of one maker's designs will show what to look for. This guard has a bar of steel along the top, of great strength to give protection against the tremendous forces released when a saw breaks or a tooth flies out. It also is provided with fingers which drag along the piece of lumber being sawed as it progresses but which grip it instantly and firmly at the slightest tendency to kick back, which is one of the most serious causes of accidents in this kind of work. The bracket is provided with a spring lock



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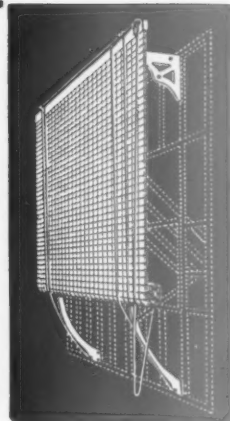
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pin by means of which it may be lifted from the saw when desired without removing it from the table, and without the use of any tools. These guards are suitable for installation on any kind of stationary, tilting, double, or single arbor tables and do not need adjustments. They are made for the smallest saws up to those of 36" diameter. When ordering this type of guard the following data should be furnished to the manufacturer:

Stationary guard: Diameter of saw and height above table, distance from saw to right hand edge of table, distance from center of saw to end of table, and length of saw slot if a double arbor saw is to be guarded.

Tilting guard: Diameter of saw and height out of table, distance from saw to right hand edge of table, distance from frame to edge of table top, distance from frame to top of table, distance from center of saw to end of table, distance from frame to end of table and the length of the saw slot for a double arbor saw.

There are also some other types of saw guards which are designed for particular purposes and have a wide applicability. For instance, if it is impracticable to use the bracket support for the guard just discussed on account of the width of the material to be sawed, an overhead support may be used, which is attached to the ceiling. This, however, is not as solid and secure as the bracket type of support and should only be used where unavoidable. Another kind of guard is a tool steel spreader, mounted and held in place by a clamp at-

tached to the under side of the table. It is suitable for saws up to 14" in diameter with non-tilting tables, and for light work. It is provided with the non-kick-back fingers and affords adequate protection at lower costs for the conditions mentioned. A third type of guard has been designed for use with saws which travel with saw carriage, and to move over the wood and drop into place automatically. This kind of guard requires special handling by the manufacturer and the best way for the prospective purchaser to find out what is needed is to mention the make of the table to which it is to be attached and ask for a data sheet showing what measurements are needed for ordering.

Jointer guards are made to operate automatically by means of a phonograph spring which is fully enclosed and running in grease. It is probably as nearly fool-proof as any guard can be and affords very complete protection. It is made in sizes suitable for knives from 6 to 22" in diameter.

Band saw guards consist of a steel enclosure for the saw, to protect the operator in case it breaks. The fingers which drop down on the work on both sides, automatically, below the stationary enclosure, protect the operator's fingers but leave the front open so that he can see what he is doing and work to a line. The dragging finger in back protects both against possible kick-back and also against contact with the back of the

Continued on page 53

INVENTORY AS A BAROMETER

MANAGEMENT HAS LONG recognized the importance of inventory investment and inventory policy as one of its major concerns. More recently, there has been a realization that a broader study of existing inventories, covering, so far as possible, the entire industrial and trade structure, may provide a most important indicator of business situations and trends, and that the inventory situation may be in itself a primary cause or a modifying factor in such business developments.

While such studies are becoming increasingly comprehensive and reliable, the basic statistics are still somewhat meager. Supplies of many raw materials are regularly estimated on the basis of production and shipments, and this information is accurate and useful as far as it goes. But it does not give any indication of supplies in the hands of consumers—an important but highly uncertain factor in most industries—nor in various intermediate stages of distribution. It does not cover inventories of finished or semi-finished goods, except in occasional instances. It does not show the distribution of inventories, which may be even more important than their volume. A sale may merely transfer goods from the inventory in the hands of a producer to another inventory in the hands of a dealer or of a consumer.

The commodities and lines whose inventories are most frequently estimated and reported in the trade press and by statistical agencies are not always characteristic of the general situation. An exhaustive recent study by Dun & Bradstreet finds such items, in wholesaling, to be generally those lines having the heaviest inventory accumulations, thus making that information unsafe as a guide to the inventory position of wholesalers in total. Similarly, department store inventories, on which reliable figures are readily available, were found to be in a considerably more favorable position than for retailing as a whole.

Aside from the magnitude and

complexity of the statistical job, another difficulty has been the lack of a common means of measurement. Shall inventories be considered in terms of physical units, in dollar value, or in days' or weeks' supply? Calculation in terms of the physical volume has the advantage of using a constant unit. It is true that such a unit has significance only when translated into value or investment, or into a time requirement. But both of these aspects have serious shortcomings because of the variables which are introduced with their use.

In a market subject to any considerable fluctuation, an inventory that remains stable in quantity will nevertheless vary widely in dollar value over the same period. In a rising market, inventory appreciation is a paper profit that is not actually realized until the materials are used or sold, and then they cease to be an inventory. But meanwhile, replacement costs are a logical and necessary consideration; the dollar investment of actual cost may be far from a true indicator of the state of a business. On a declining market, there is the ever-present spectre of inventory losses.

Purchasing men are more inclined to think of inventories in terms of so-many-days' supply. On a normal or stable operating basis, that is a satisfactory and understandable method of measurement. But a curtailment of 25% in the operating rate—and such decisions are made overnight—will turn a 6-weeks' supply into an 8-weeks' supply without the addition of a single unit. And stepping up operations by 25% would make the 6-weeks' supply equivalent to less than five weeks' requirements, and such a change might readily bring the period of coverage to less than the required time for new deliveries.

Many purchasing men have experienced far more extreme cases than this in recent months. One buyer who had vainly tried for years to build up a 2-months' reserve of a certain material of

delicate and exacting chemical specification, suddenly found himself with nine months' supply on hand and in process on order, as a result of such a change in production policy. In some types of materials that situation would present serious hazards of deterioration as well as a highly unbalanced stock and excessive commitments.

One trend that seems to be well established in present business practice is the policy of pushing the inventory burden as far back toward the source of production as possible. The manufacturer or producer is expected to carry stock for the industry he serves. The Dun & Bradstreet survey finds manufacturers' inventories at the close of 1937 to represent 61.5% of total inventories—manufacturers, wholesalers, and retailers. The figure had risen from 59.4% in the period of two years. Since this calculation is in dollar terms, and unit prices are naturally greater in successive stages of distribution, it is possible that in physical volume the manufacturers' inventories would be proportionally even higher.

In all three divisions of trade, inventories were shown to have increased over that period, but in uneven ratio. The intermediate or wholesale stage maintained the closest relation between inventory and volume of trade.

What will inventory statistics prove? That point still remains to be determined. Their importance as a market factor is rather clear, but their barometric or forecasting value is still a matter of conjecture. Inventory trends, coupled with a statement of buying policy, in the N.A.P.A. survey of business conditions has been a most useful indicator of the consensus of business judgment and of industry's state of mind, both as regards volume and price. But a definite relationship with actual developments has yet to be determined.

Among the conclusions drawn from the Dun & Bradstreet study is that there is no evidence to indi-

cate that inventories were a primary cause or initiating force of the recession of 1937-1938, though their accumulation during the summer of 1937 did notably accelerate the sharp break in fall sales.

This would indicate that inventories are another of the factors which tend to exaggerate the ups and downs of business progress, despite the fact that they are assumed to be a cushion against just such fluctuations. For example, inventory policy will have a definitely accelerating effect on industrial activity at the beginning of a recovery period. Assume a 25% increase in demand for an item presently used at the rate of 100 units per month, and with a normal inventory reserve of 3-months' supply. Orders have been placed at the rate of 300 units over a 3-months period, inventory remaining at a constant level. On the increased schedule, this will require an additional 75 units (25%) for consumption. But to maintain a comparable inventory supply, 75 additional units will have to be placed in stock to bring the inventory up to the new 3-months' requirement of 375 units. The increase over this initial period will therefore be 150 units, or 50%.

Meanwhile, in late June, a tendency has become apparent to extend the period of coverage. If we decide to hold a 4-months' supply in reserve, that means 125 more units, or a total increase of 375 units (91.6%) to accommodate the 25% advance in current requirements! After that adjustment has been made, the rate will naturally level out, but there is obvious danger in such a pyramiding process. The existence of substantial inventories at the source provides a reservoir that will help to temper the acuteness of any such development and to spread the process of adjustment over a more extended period at a more moderate pace, in line with the actual increase in consumption requirements.

The effect of high inventories on price is generally depressive, regardless of where they are held. This has been amply demonstrated in recent months. Stocks in the

hands of producers and dealers represent the weight of supply; stocks in the hands of users mean less urgent demand. The effect of both these factors is to send the price balance downward. Market strength has been retarded because of such a situation. At the same time, the desire to maintain the integrity and value of inventory investment has not only made heavily-stocked producers reluctant to lower quotations, but has relieved them of much pressure from users who find themselves in a similar position.

One significant point that has been brought out by these recent studies is that inventory policy is not entirely a matter of the individual concern, but that intelligent purchasing demands the greatest possible amount of information regarding the inventory situation in an industry as a whole and the position of the individual company in relation to that general situation.

Obituary

JOHN OTTO SNYDER, 46, Purchasing Agent and member of the Board of Directors of the Crow-Burlingame Co., Little Rock, Ark., died at the Little Rock Hospital, May 27th.

DAVID T. DETWEILER, 40, Purchasing Agent for the Masland Duraleather Co., Kensington, died at his home in Frankford, Penna., May 30th.

CHARLES SMITH, 49, formerly purchasing agent for Thompson's Spa, Boston, and more recently manager of the Robbins' Light Restaurant at Falmouth, died at his home in Atlantic, Mass., June 2nd.

CHARLES HENRY BICKELL, Purchasing Agent for the Tidewater Associated Oil Co., New York since 1908, and formerly purchasing agent for Arbuckle Brothers, died at Passaic, N. J., June 4th.

HARRY W. KINOUSE, 67, formerly purchasing agent of the Good-

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rich Transportation Co., Detroit, died at his home in Dunewood on Lake Michigan, June 12th.

JOHN R. MCGIVNEY, 68, Purchasing Agent of the New Orleans Public Service, Inc., died of a heart attack at his home in that city, June 14th.

DAVID VAN NESS PERSON, 50, Purchasing Agent for the National Grocery Co., died of a heart attack at his home in Montclair, N. J., June 14th. Mr. Person had long been associated with the food industries. He formerly operated his own company, and served as purchasing agent for the National Biscuit Co. prior to joining the National Grocery Co.

HARRY A. DUFFY, 47, Purchasing Agent for the Michigan Tool Co., Detroit, and for several years prior to that purchasing agent for the Highland Park plant of the Ford Motor Co., died suddenly at his home, June 29th.

Among the Associations

New Orleans—The New Orleans Association is actively cooperating with the Association of Commerce of that city in a program to bring new industries to that area and make locally available products and commodities that are now necessarily purchased elsewhere, as part of a larger program to increase employment and purchasing power. Rene H. Garrot of the United Fruit Company is liaison chairman of the Commerce Association's Committee of 101, and the Purchasing Agents' committee consists of A. Grant Clark of the McWilliams Dredging Co., President of the P. A. Association, W. N. Cottrell of Standard Oil Co. of Louisiana, E. L. Morvant of Realty Operators, Inc., G. A. Lyncker of American Sheet Metal Works, Clifford J. Alexander of Shell Petroleum Corp., L. S. Stein of Standard Fruit Co., and F. J. Basile of the National Bank of Commerce. Specifically this committee will compile a study of commodities now bought outside of the area and an analysis of the factors contributing to this condition, this to be followed by conferences with leaders in the affected groups in an effort to arrive at an understanding as to "what obstacles must be overcome to make it possible for us to make the purchases in this area without prejudice to the interests we represent."

JUNE 1

Rochester—Dinner meeting of the **Rochester Association**, at the Rochester Club. Speaker: Dr. Meyer Jacobstein, former Congressman, "The American Standard of Living and Recovery."

JUNE 2

Columbus—Annual golf party of the **Columbus Association**, at Windy Hollow Country Club.

Birmingham—Dinner meeting of the **Birmingham Association**, at the Redmont Hotel. Reports on the St. Louis convention of N.A.P.A., and a summary

of business conditions in the south by H. C. Green of Republic Steel Co. The following officers for 1938-1939 were installed: *President*, H. C. Cross of Sloss-Sheffield Steel & Iron Co.; *Vice President*, George Cole of Alabama Power Co.; *Secretary*, C. Lauthrer; *Treasurer*, Cecil Matthews; *National Director*, L. C. Teague.

San Francisco—Luncheon meeting of the **Northern California Association**, at the Palace Hotel. Speaker: Dr. Wallace Macfarlane of Pacific Guano Co., "What to Do With Our Gardens and Orchards."

JUNE 3

New York—First annual dinner and entertainment of the **Metropolitan Purchasers Assistants Club**, at Ivan Frank's Hofbrau.

JUNE 7

Oakland—Luncheon meeting of the **East Bay Group, Northern California Association**, at the Lake Merritt Hotel. High lights of the St. Louis convention, presented by the delegates.

JUNE 8

Buffalo—Dinner meeting of the **Buffalo Association**, at the Hotel Statler. Glenn C. Parsons of the Arner Co., Inc., was elected president for the coming year, succeeding W. E. Blake of the Carborundum Co. Other new officers are: *Vice Presidents*, Bernard T. Loft of Bethlehem Steel Co. and Frank J. McMahon of Niacet Chemicals Corp.; *Secretary-Treasurer*, Russell H. Sharp of U. S. Rubber Reclaiming Co.; *Directors*, Frank A. Maley of Curtiss Aeroplane Division, Curtiss-Wright Corp., and Robert L. Cavanaugh of Buffalo Tank Corp.

Kansas City—Dinner meeting of the **Kansas City Association**, in the Pine Room of Fred Harvey's. Speaker: Ralph B. Innis, "Insurance Problems." Reports of the St. Louis convention.

JUNE 9

Chicago—Dinner meeting of the **Chicago Association**, at the Hotel Sherman. Speaker: Reuben D. Cahn, chief economist and statistician of the *Chicago Tribune*, "What Lies Ahead for Business." Motion picture, "Trees and Men," shown through courtesy of the Weyerhaeuser Sales Co. Reports from the N.A.P.A. convention.

San Francisco—Luncheon meeting of the **Northern California Association**, at the Palace Hotel. High lights of the St. Louis convention, presented by the delegates.

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Los Angeles—Dinner meeting of the **Los Angeles Association**, at the Elks Club. Speaker: Hon. Wallace L. Ware, President of the California State Railroad Commission, "Transportation Regulations." Reports of the N.A.P.A. convention.

Seattle—Dinner meeting of the **Washington Association**, at the Olympic Hotel. Reports on the N.A.P.A. convention by Frank A. Carson and Earl C. White. Discussion of two national releases, "Prestige" and "Life or Death—Which?", by G. W. Stutz. Illustrated lecture, "Under-Sea Life of Puget Sound," by Floyd Schmoe of the University of Washington, formerly chief naturalist at Rainier National Park.

Dayton—Annual picnic of the **Dayton Association**, at Walnut Grove Country Club. Guests were present from Cincinnati, Middletown and Springfield.

Philadelphia—Golf outing and dinner meeting of the **Philadelphia Association**, at the Llanerch Country Club.

JUNE 10

Provo—Plant inspection visit by the **Utah Association**, at the Columbia Steel Co. and Pacific States Iron Pipe Co., at Ironton, followed by a dinner meeting at the Hotel Roberts as guests of these two companies.

JUNE 13

Columbus—Dinner meeting of the **Columbus Association**, at the Seneca Hotel. Gordon S. Battelle of Dayton discussed the economic situation, with particular attention to tax problems. New officers as announced in this column last month were installed at this meeting.

JUNE 14

Tulsa—Dinner meeting of the **Tulsa Association**. Reports covering principal phases of the N.A.P.A. convention at St. Louis. Talking pictures of sport and travel, presented through courtesy of the Chrysler Corp.

Cincinnati—Outing and dinner meeting of the **Cincinnati Association**, at the Cincinnati Gymnasium Boat Club. The following officers were elected for 1938-1939: *President*, Andrew Kueffner of Century Machine Co.; *Vice Presidents*, Wilbur Muchmore of Frank F. Taylor Co. and James P. Fath of Estate Stove Co.; *Secretary*, Edward H. Cordes of E. Kahn's Sons; *Treasurer*, Ralph C. Lewis of Warner Elevator Co.; *National Director*, William McK. Reis of R. K. Le Blond Machine Tool Co.; *Local Directors*, C. W. Franklin of Andrews Steel Co., Milton Maddux of Hamilton County, and Arthur Wheeler of Wadsworth Electric Co.

JULY 1938

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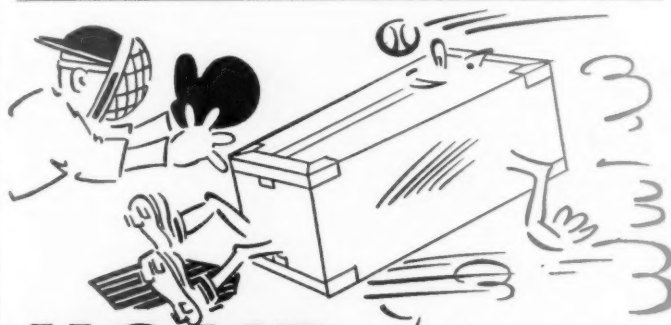
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New York—Dinner meeting of the **Metropolitan Purchasers Assistants Club** at the Hotel Brittany. Speaker: Professor Robert Jenkins of New York University. The following officers were elected for the ensuing year: *Board Chairman*, Harold D. Mead; *President*, George C. Ashley; *Vice President*, Charles Panzica; *Secretary*, Ralph Walker; *Treasurer*, J. A. Reynolds.

Detroit—Golf tournament of the **Detroit Association**, at Brooklands.

JUNE 15

Canton—Dinner meeting of the **Canton & Eastern Ohio Association**, at Shady Hollow Country Club. Speaker: Thomas D. Jolly of the Aluminum Co. of America, Pittsburgh, newly elected vice president of District 6. The following officers were installed to lead the association during 1938-1939: *President*, John F. Buchman of Frankham Brass & Bronze Co.; *Vice President*, A. J. Burns of the Bonnot Co.; *Secretary-Treasurer*, Charles Witter of Reserve Printing Co.; *Directors*, Peter Voss of Timken Roller Bearing Co., Warren Hollinger of Canton Hardware Co., J. A. O'Neil of Griscom-Russell Co., R. R. Miller of the Deming Co., and Leo F. Ryan of Ohio Power Co.

Springfield, Mass.—Annual summer outing and ladies' day program of the **Western Massachusetts Association**, at the Springfield Country Club. Golf, dinner and dancing.

JUNE 16

Toledo—Meeting of the **Toledo Association**, at the Highland Meadows Golf Club. Golf, dinner, and entertainment.

San Francisco—Annual meeting of the **Northern California Association**, at the Elks Club. Illustrated talk by Frank C. Kugelberg, "Isles of Enchantment in the South Seas." The following officers were elected for 1938-1939: *President*, William C. Hubner of A. M. Castle & Co.; *Vice Presidents*, Arthur R. Woodman of Nestle's Milk Products, Inc., and Clyde Yerge of Oakland Public Schools; *Secretary*, George W. Aljian of California & Hawaiian Sugar Refining Corp.; *Treasurer*, Herbert W. Heintz of Standard Oil Co. of California; *Directors*, Oakley W. Dexter of Crown Zellerbach Corp., John A. Brothers of California Packing Corp., William C. Figroid of Pacific Electric Motor Co., R. W. Peterson of Durkee Famous Foods, Joseph E. Primeau of Hotel St. Francis, Alfred Urry, and A. L. Wille of Moore Dry Dock Co.; *Finance Committee* (5 year term) Frank R. Sherwood of Pacific Gas & Electric Co.

Vancouver—Golf outing and dinner meeting of the **British Columbia Association**, at the Marine Drive Golf Club. Officers for 1938-1939 were installed at this meeting.

Albany—Annual outing of the **Eastern New York Association**, at the Van Rensselaer Country Club. There was a general program of outdoor games.

Birmingham—Luncheon meeting of the **Birmingham Association**, at the Redmont Hotel. Speaker: LeGrand C. Wilson of Goodall-Brown Dry Goods Co., "Selling."

JUNE 17

Norwich—Annual Ladies' Day outing of the **Connecticut Association**, at Norwich Inn. Golf, bridge, dinner and dancing.

Milwaukee—Meeting of the **Milwaukee Association**, at the Westmoor Country Club. The following officers were chosen for 1938-1939: *President*, F. S. Wilhoit of Cutler-Hammer Mfg. Co.; *Vice President*, T. H. Schultheis of John Rauschenberger Co.; *Secretary*, E. H. Jones of E. R. Wagner Mfg. Co.; *Treasurer*, E. J. Peters of Pittsburgh Plate Glass Co.; *National Director*, H. A. Steffen of Wadhams Oil Co.; *Local Director*, C. E. Bradley of Loeffelholz Co.

JUNE 17-18

Greensboro, N. C.—Spring meeting of the **Carolas-Virginia Association**, at Sedgefield Inn. Dinner meeting on Friday. Report on national association affairs by W. G. Thomas, National Director, and highlights of the St. Louis convention by J. B. Stacy, R. V. Spangler, and J. J. Barnhardt. At the Saturday morning session, Major L. P. McLendon of Greensboro spoke on "Government and Business" and J. W. Knowlton reported on the economic situation.

JUNE 18

Trumbull, Conn.—Annual outing of the **Salesmen's and Purchasing Agents' Association of America**, at Eichner's Farm. General program of sports, followed by a beef barbecue.

JUNE 21

Pittsburgh—Annual summer outing of the **Pittsburgh Association**, at the Edgewood Country Club. Golf, bridge, dinner and dancing.

Oakland—Luncheon meeting of the **East Bay Group, Northern California Association**, at the Lake Merritt Hotel. Demonstration of the lie detector by representatives of the Berkeley Police Department.

St. Louis—Dinner meeting of the **St. Louis Association**, at the Hotel York. Debate on the topic, "Resolved: That the Wagner Labor Relations Act is a Hindrance to Business and Industrial Peace." Chairman, Dr. Ralph B. Wagner of St. Louis University. Speakers: Atty. James S. McClellan of Taylor, Chasnoff & Willson, and Atty. Robert W. Herr of Hay & Flanagan.

New York—Inspection visit and annual meeting of the **New York Association**, at the grounds of the World's Fair 1939. Tour of the fair grounds, followed by cafeteria dinner at the Administration Building. Speaker: Hon. Grover A. Whalen, President of the World's Fair Corporation. Entertainment. Officers for 1938-1939 as previously announced in this column, were elected.

Louisville—Annual outing and dinner meeting of the **Louisville Association**, at the New Albany Country Club.

JUNE 22

Detroit—Past Presidents' and Old Timers' Night meeting of the **Detroit Association**, at Webster Hall.

Auburndale, Mass.—Annual summer outing of the **New England Association**, at the Woodland Golf Club. General program of sports, followed by a steak dinner.

JUNE 23

Cleveland—Golf tournament of the **Cleveland Association**, at the Acacia Country Club.

San Francisco—Luncheon meeting of the **Northern California Association**, at the Palace Hotel. Speaker: Lester Gribble of the Electrical Specialty Co., "Plastics."

JUNE 25

Birmingham—Annual summer outing of the **Birmingham Association**, at Pineview Beach.

JUNE 27

Palmerton—Golf outing and dinner meeting of the **Lehigh Valley Association**, at the Blue Ridge Country Club. R. K. Bryan of the New Jersey Zinc Co., was chairman.

JUNE 28

Syracuse—Dinner meeting of the **Syracuse & Central New York Association**, at the Onondaga Hotel. Speaker: C. S. J. Trench, Editor of *American Metal Market*, "Does mass action, or inaction, on purchases work out to the advantage of either consumers or producers?" Report of the N.A.P.A. convention at St. Louis, by C. H. Kissel of Goulds Pumps. Sound picture in technicolor, "Steel—Man's Servant," presented by the United States Steel Subsidiaries.

Tulsa—Plant visit and buffet supper of the **Tulsa Association**, at the Tulsa Boiler & Machinery Co.—American Steel Derrick Co. in West Tulsa.

JUNE 30

San Francisco—"Hands Across the Bay" joint luncheon meeting of the Oakland and San Francisco groups of the **Northern California Association**, concluding the program for the current fiscal year.

JULY 1938



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Purchase Accounting

(Continued from page 26)

sult of the legitimate operations of most purchasing departments, they are represented by a credit entry. The standard for total purchasing department expense is the percentage of average dollar cost to the average total dollar volume of purchases, as determined from past records. If any seasonal differences are noted for purchasing costs generally, due to fluctuations in production activity, the computed monthly average percentage figure could be used rather than a yearly one. In this report account, the items are given in actual dollars spent, percent of actual costs to actual purchases, and the standard month percent of costs to purchases so that the executive can see at a glance just where the purchasing department stands.

The material variation loss will be recorded on the expense side, while a gain would be recorded on the credit side of the "Purchasing Department Control Account." The standard for this item would be the average gain or loss as a percent of dollar value of purchases for past years. Since the variation in cost and price of materials is beyond the control of the purchasing department, this standard cannot be considered as a direct measure of the purchasing department's efficiency; it serves only as a goal. Price variations should be considered in judging the importance of this item.

Loss and Error expenses is a debit charge, the standard for which is zero. If any charge is made for this item, beyond a nominal one for the almost inevitable expense of returning goods, it acts as an indicator that the purchasing department has been lax in its duty of keeping the right material available for production. A large charge for this item in any month acts as a large demerit against the purchasing department while the estimated savings credit serves to offset the demerits from losses and errors in the long run, and can be regarded as a merit mark for the purchasing department since there can be no

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definitive standard for these items. A standard allowance could be determined from past experience for loss and error, as well as a standard of performance for estimated savings, but the use of such standards would tend to make the purchasing director content with not concentrating enough on error reduction or in showing only standard savings.

The ideal condition for an efficient purchasing department would be to have the credits to the control account out-balance the debit items before a consideration of losses and errors or estimated savings. Practically, the purchasing department should justify its own existence only by being able to cover its cost from the savings which it is able to make in purchasing more efficiently than if there were no organized purchasing department and all materials had to be bought at market prices on a hand-to-mouth basis.

A balance on the debit side of this account would be a credit to the purchasing department, and the actual percentage of this balance, gain compared to total purchases, added to 100% would give the percentage efficiency of the department. A credit balance would be a charge against the purchasing department and this percent balance, loss compared to total purchases, subtracted from 100% would also represent the efficiency of the purchasing department. Thus, by carrying percentage actual and percentage standard figures in this account, the rating of the purchasing department can be measured in regard to each category of expense or gain leaving out such indefinite items as loss and errors and estimated savings, or including all items, as it may be desired. The comparative percentage figure would allow comparison with past activity and cost for other companies.

The percent efficiency figure variation will be small when activities are accounted for according to cost per dollar value of purchases, since the percentages for each item also represent the cost in cents per dollar of total purchases. However, the range for efficient operation should not be defined over too wide

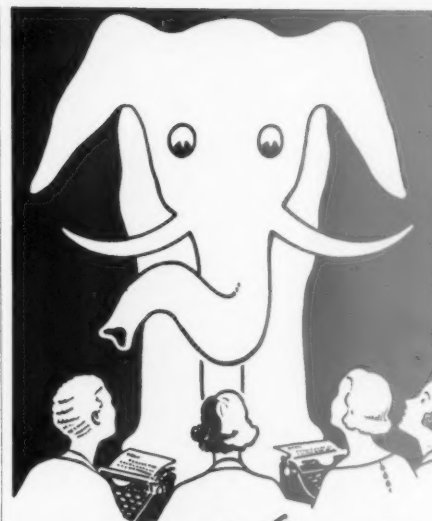
an area anyway. And, since this percent figure represents actual costs and gains, it is a true indicator of purchasing department efficiency.

The net figures on which the purchasing department efficiency rate will be set will represent the net costs less proved gains or savings. This dollar figure, or net cost or gain, can be converted into a percent representing purchase cost by dividing it by the total dollar value of purchased material for the period.

The use of actual dollar value figures, computed as accurately as the accounting system of the company will permit, eliminates the indefinite value of an index which is based upon arbitrary rating of various activities of the purchasing department. Actual dollar figures for loss or gain are not arbitrary since they can be taken from financial records (with the possible exception of Estimated Savings) and are not mere matters of opinion.

The maintenance of accounts, recommended in this paper, permits the recording of all tangible factors in relation to reasonable standards of performance and gives a control account form of report for managerial use which is easy to understand and yet is adequate for control purposes. The information on the control account form should be accompanied with such statistical information as dollar volume of purchases, the number of persons in the department, the size and turnover of stores to aid in judging efficiency. The information from this report is easily adaptable to charting methods of visual control.

The cost accounting system can tie in the control records with the actual accounting and financial records of the company and can be adapted to the peculiarities of any industry or company to be controlled. Since the accounting system of purchase costing can give the cost per dollar of purchases (percent standards) for each item of expense or gain, with little extra clerical effort, it might indicate that the application of cost accounting procedure can eventually lead to the solution of the purchase cost control system.



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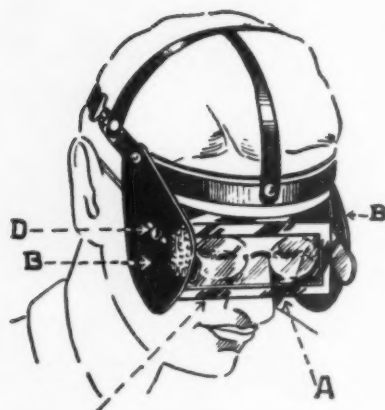
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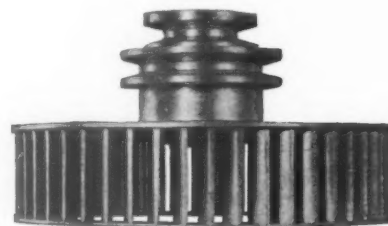
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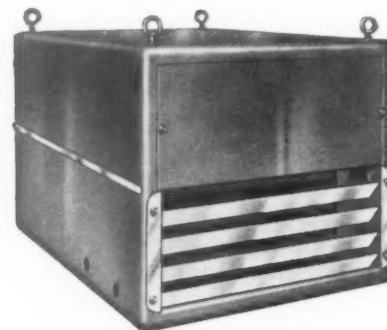


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UNIT COOLER



No. 609

THIS NEW LINE OF AIR conditioners combines a cooling coil connected to a cold water supply and a fan circulating device which drives the air over the coil and delivers it through directional louvers so placed in the face of the housing as to prevent cold drafts. The entire assembly is attractively finished in baked brown crackle and is designed with four eye-bolts in the top surface for ceiling mounting. There are six sizes, providing a range for every application. The smallest, measuring $22\frac{1}{4} \times 42 \times 26$ inches overall, is powered by a $\frac{1}{8}$ hp. motor, delivers 720 cu. ft. of cooled air per minute, has a water consumption of $2\frac{1}{2}$ gpm., and a refrigerating capacity of 1 ton, based on water at 60° , room temperature of 85° dry bulb and 50% relative humidity. The largest unit measures $49\frac{1}{2} \times 42 \times 30$ inches, has a $\frac{3}{4}$ hp. motor, delivers 3,490 cu. ft. per minute, consumes $10\frac{1}{2}$ gpm., and has a refrigerating capacity of 5 tons. In cool weather, the unit can be used for circulating purposes only, and can be installed with a duct to admit a regulated stream of fresh air from the outside. Installation is simple, and operating cost is estimated at $1\frac{1}{2}$ to 3 cents per hour.

Use coupon at left

PURCHASING

11 West 42nd St.
New York, N. Y.

Please send complete data on the New Products listed by number below:

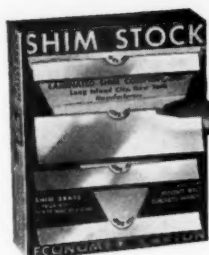
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Name.....

Company.....

Address.....

City..... State.....



SHIM STOCK CONTAINER

No. 610

AN INGENUOUS CONTAINER has been developed to facilitate the shop storage and use of shim stock. It accommodates four 50-inch rolls of special shim brass in thicknesses of .001, .002, .003, and .005 inches. The shop or maintenance man pulls the stock through slots in the container and cuts it off as needed, thus saving time, making for ease of handling, and eliminating waste and wrinkling of the stock. A warning signal on each roll indicates when the supply is nearly exhausted and permits prompt reordering.

Use coupon page 48



PAINT STRIPING TOOL

No. 611

THIS NEW DEVICE PERMITS the application of three lines simultaneously, the center stripe being of a different color from the outside stripes if desired. The two colors are fed from a pair of small containers mounted in the head of the tool, one container feeding to the two outside nibs and the other to the single center nib of the striping assembly. Paint is caused to flow by means of a thumb trigger. Alignment is maintained by a pair of adjustable guides above and below the striping nibs. The outside nibs are arranged for linear flexibility so that even contact can be had on all three over slightly irregular surfaces. The tool can be used in grooves, on edges and raised sections as well as on vertical or horizontal flat surfaces.

Use coupon page 48



TORQUE-INDICATING WRENCH No. 612

THIS RATCHET WRENCH has been designed for use in tightening bolts evenly in the installation of pipe flanges, couplings, cylinder heads, pump and turbine casings, etc. The indicator is set at the desired torque in foot pounds, and the wrench is then used in a normal manner until that tension has been reached, at which time there is a visible signal, a sharp click, and a further indication in the fact that the ratchet locks at that point. It is not necessary to reset the wrench to tighten the next bolt or nut. The mechanism is simple and has nothing to get out of order or to be damaged by careless handling. Since the handle



WHEN Thomas cold rolled strip is on the job, you can depend on uniformity of gauge, temper and finish. You can resume speed and maintain it constantly, uninterrupted by steel failure. Thomastrip is available in uncoated bright finish and also electro-coated with copper, brass, zinc and nickel. . . All these give Thomas a greater range with which to match cold rolled strip steel to the job—it is truly a steel rolled by specialists. For further information, write or call The Thomas Steel Company.



does not swing free, there is no danger of smashed fingers for the operator. The small head permits its use in close quarters and inaccessible locations. It is claimed that the accuracy of the wrench itself is greater than the consistent performance of the bolts on which the wrench is used.

Use coupon page 48



ADJUSTABLE CHAIR

No. 613

THIS LINE OF CHAIRS and stools, in six models, features an adjustment for height by lifting the seat to the desired position, where it will remain fixed until released by operating an adjusting lock which is assembled inside the double steel tube pedestal where it cannot be tampered with and does not require lubrication. The chair swivels freely at any height, on hardened steel ball bearings. The various models, adapted to all factory and office purposes, include stools with round steel seats, chairs with wood seats and back rests and foot rests, also executive and stenographic types. Standard finish is olive green for the metal parts and brown for the wood parts.

Use coupon page 48

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Hotel Imperial is just a step from Fifth Avenue Shops--
Department Stores--Empire State Building--Subways--
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points of interest in New York—plus genuine com-
fort and real economy

HOTEL IMPERIAL

600 ROOMS

SINGLE WITH BATH \$2.

DOUBLE WITH BATH \$3.



Write Manager
for Special Week-
end Rates to New
York (with or with-
out meals)

PAGE 50



TEXTILE TUBING

No. 614

FLEXIBLE BURLAP TUBING in various diameters is now available as a wrapping material to be used in place of the former method of covering with piece goods and sewing by hand. Made of 7½-ounce burlap, each size of tubing is sufficiently flexible to provide a neat and closely fitting cover for a wide range of package sizes. For example, the 40-inch tubing is equally adapted to wrap a roll of 13-inch or of 21-inch diameter, other sizes having a similarly wide range of application. A portable carriage, holding three rolls of various widths, adds to the convenience of use. It can be used on rugs or carpets, dyed and finished goods, other textiles, wire, cable, hose, and other products not covered under compression. The tube is drawn over the object to be wrapped, fastened at the bottom with a wire tie, smoothed by hand, fastened at the top with wire, and cut off just above the wire. It requires no special skill, can be accomplished in 1/6 to 1/3 of the time used in hand sewing, avoids the waste inherent in pre-cutting and hand-sewing, and results in a neater package with 30% less weight of covering material. It can be readily opened at destination by simply cutting the wire tie. The illustration shows such a package, at right, compared with the old method of wrapping and sewing.

Use coupon page 48

ACID BUCKET



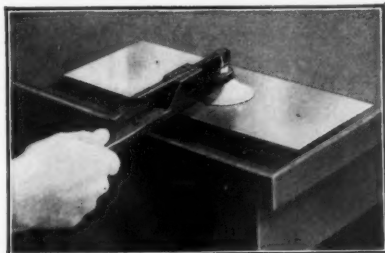
No. 615

THIS SEMI-FLEXIBLE BUCKET has been developed for the handling of acids and other corrosive liquids. It is unaffected by these substances, will not crack or break under normal use, and has a reinforced bead and recessed base so that the user can maintain a firm grip with a gloved hand. The bucket

PURCHASING

has a steel or metal-reinforced hard rubber handle. A capacity scale is molded on the inside, showing the amount of liquid contained at any time, and with the capacity line 2 inches from the upper edge. The total weight is $3\frac{1}{2}$ pounds.

Use coupon page 48

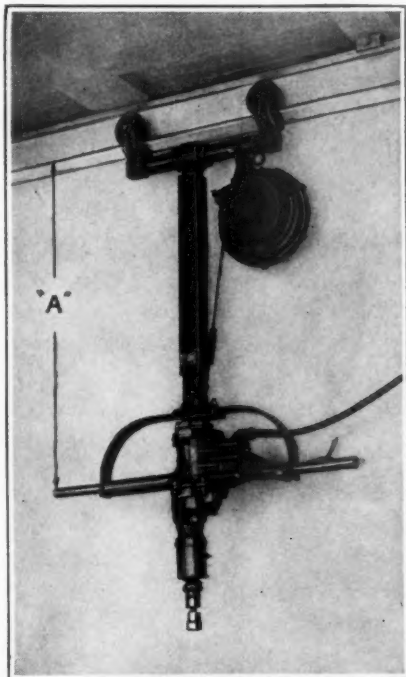


VACUUM LIFTER

No. 616

FOR LIFTING, FEEDING, and positioning sheet metal blanks in stamping machines and die press operations without inserting hands or fingers within the danger line, or for rapidly transferring metal blanks from piles or stacks, especially when oily or otherwise difficult to grasp with the fingers, this lifter is a practical and efficient tool. A sharp blow on the surface of the sheet produces a vacuum within the cup sufficient to affix it to the object for lifting and handling. A slight thumb pressure unseats the valve and breaks the vacuum, thus releasing the object. It can be used with equal success on any non-porous materials, and on blanks of curved contour. Dampness, oily, or greasy surfaces add to the lifting qualities.

Use coupon page 48



BALANCER FOR LARGE TOOLS

No. 617

THIS NEW DEVICE for suspending large electric and pneumatic drills, nut setters and other tools above the working location not only supports the tool but also absorbs the torque and eliminates danger of injury to operators when the tool sticks. Ease of handling and positive load control are obtained because the balancers are adjusted to balance in working position and no effort is required to lift or hold the tool or to "fight" the torque. The equipment has a range of travel from 3 to 6 feet and a load capacity from 45 to 100 pounds. The torque arm telescopes to permit the maximum amount of travel when open and the minimum head room when closed. Since the telescoping tube is square, tools may be suspended either vertically or horizontally,



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may cut well"

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Loring Coes Company
Worcester, Mass.

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IDEAS
ON
CLEANING
ARE
VALUED



For the last nine years this Oakite Representative has been stationed in one eastern city. As in the case of other Oakite Service Men, his suggestions are practical. They are based on his own successful day to day work serving many industries, plus the composite nation-wide experience of the Oakite organization over a period of 29 years.

Your cleaning problems too, can probably be handled easier, more economically when this unique Oakite experience is applied to them. Ask to have an Oakite Service Man call. There is no obligation in discussing your problem fully, in getting the ideas that have proved so helpful to thousands of leading concerns.

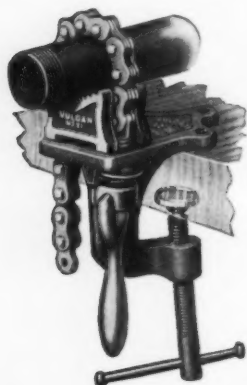
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Branch Offices and representatives in All Principal Cities of the U. S.

OAKITE
Certified **CLEANING**

MATERIALS & METHODS FOR EVERY CLEANING REQUIREMENT

and the limit stop acts as a double safety device. A yoke bracket at the bottom of the arm accommodates all shapes and sizes of yokes as required. The balancer is adjusted to balance at working level. When not in use, it is raised to top position, where it locks automatically, holding the tool above the operator and providing ample clearance below. The weight complete is 143 pounds.

Use coupon page 48



PIPE VISE

No. 618

WEIGHING ONLY 5³/₄ pounds, and accommodating pipe from $\frac{1}{8}$ to 2 inches, this vise can be quickly and firmly attached to a bench, post, or other support without the use of screws or bolts. The clamping member is integral with the base, and the clamp screw, set at a slight forward angle, carries a swivel with thin V lip projecting from its upper edge, assuring rigidity and security while in use. The drop-forged jaws are saw tempered for file sharpening.



Barnes Band Saw Blades are hard-edged for fast, accurate cutting and long life. There's a Barnes distributor near you!

W. O. BARNES CO., INC. Detroit, Mich.

Rough out LARGE HOLES



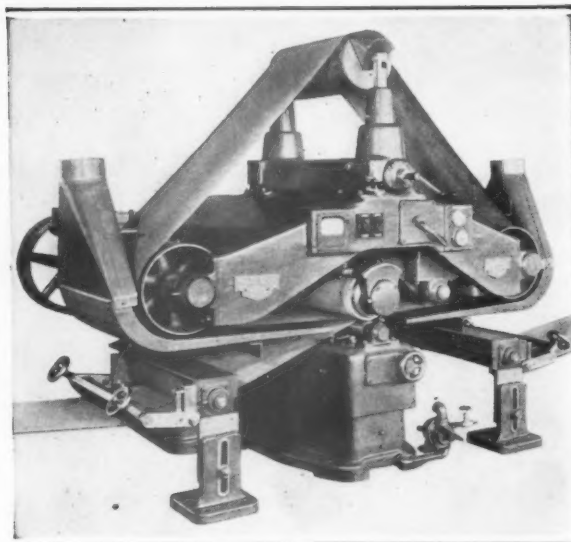
Saves tedious hours of costly machining—by roughing out large holes (die plates, castings, etc., etc.) on drill presses with MARVEL High-Speed-Edge Hole Saws. These new type hole saws with a genuine 18% Tungsten High-Speed-Edge electrically welded to a tough shatter-proof alloy steel body, high-speed centers and heavy arbors have the strength to withstand the terrific peripheral strain developed on high-speed drill presses and the "set" for deep drilling (to $1\frac{1}{4}$ " in steel).

Write for name of nearest distributor.



ARMSTRONG-BLUM MFG. CO. "The Hack
5760 Bloomingdale Ave., Chicago, U. S. A. Saw People"

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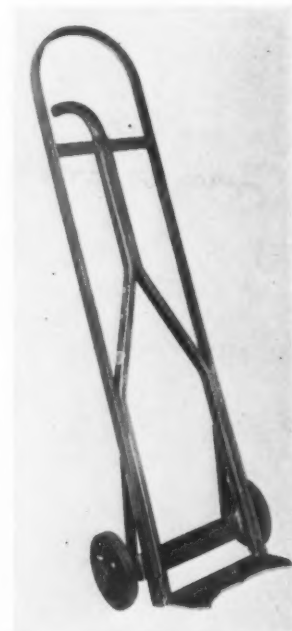
GRINDING MACHINE

No. 619

THIS GRINDING MACHINE is provided with an abrasive belt, mounted between a pair of power-driven rolls and a vertically adjustable tension roll at the top of the assembly. The belt is backed up by a cushioned grinding roll, which can be adjusted to produce the desired pressure and grinding effect. It is specifically designed to handle strip steel from 12 to 36 inches in width during manufacture and after successive cold-reducing operations. The strip is fed through the machine from a pair of power driven reels placed at each end, and passes over an air-operated support roll under the center of the machine. Since the abrasive belt is also driven at both ends, it can be operated in either direction.

Use coupon page 48

HAND TRUCK

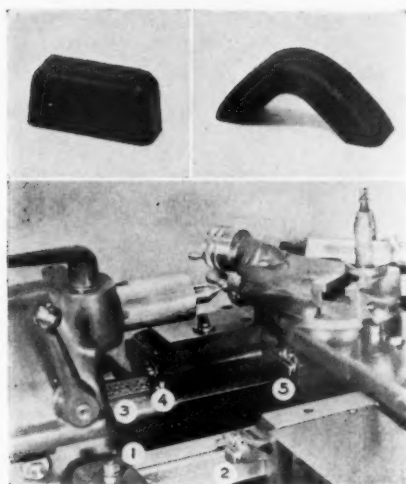


No. 620

SPECIALLY DESIGNED FOR handling several boxes or cases piled upon each other, as a single unit, this hand truck is fitted with a U-shaped member of $1\frac{1}{4} \times \frac{1}{2} \times \frac{1}{8}$ inch channel, welded to the side members, thus providing an overall height of $50\frac{3}{4}$ inches. The width of the unit is $17\frac{1}{2}$ inches. Wheels are 6 inches in diameter and are furnished either in semi-steel with plain bearings, or rubber tired on Hyatt bearings.

Use coupon page 48

PURCHASING



OIL-PROOF WIPERS

No. 621

FOR USE IN PLACE of the felt wipers generally used on way surfaces of machine tools to prevent metal chips, grit and other foreign substances from wearing these surfaces, a new line of molded synthetic rubber wipers has been developed. Besides being resistant to the effects of oil, acid and other liquids, the new wipers will not pick up or absorb grit particles, metal chips or abrasive material; they afford greater protection against scoring, and are said to have a much longer service life than felt. Resilient, tough, and long-wearing, they have been adopted as original equipment by some manufacturers and are available for replacement use on lathes, planers, grinding machines, turret lathes, milling machines, and similar equipment.

Use coupon page 48



SALT TABLET DISPENSER

No. 622

MOLDED OF PLASTIC MATERIAL that has nothing to corrode, and moisture proof with lock top and key to maintain the contents in proper condition, this dispenser mounted beside the drinking fountain provides a convenient method of making available the tablets of sodium chloride that are now recognized as an effective means of preventing heat sickness by maintaining the proper salt balance in the body. It has a capacity of 1,500 tablets, a transparent opening in the container showing when a refill is necessary. Waste is avoided by a transparent tablet retaining guard, and discharge of one tablet at a time by a slight turn of the operating knob in either direction. It is further provided with a label giving directions as to its use, and with a metal wall bracket and mounting plate for easy installation.

Use coupon page 48

MATERIALS HANDLING EQUIPMENT



No. 623

THIS NEW SYSTEM FOR materials handling in factory and storeroom consists of a semi-live skid and 2-wheel lifting unit. The carrying platform has a smooth hardwood top entirely surrounded by an arc-welded steel frame. Double side girders hold the wood top firmly in place without the use of bolts or rivets, and there are no exposed board ends. The platform wheels are equipped with pressure lubrication and roller bearings, and there are no projections to interfere with the entrance of hand or electric lift trucks. The lifting unit is of sturdy arc-welded construction, stands alone in upright position, and is equipped with large dual wheels and roller bearings. Lifting is accomplished with a single stroke direct action which automatically shifts the weight of the load from handle to axle, leaving a free steering handle requiring no pressure to keep the load in the elevated position. The lifting unit cannot break away from the skid while transporting load. It can be lowered by simply raising the handle.

Safety Appliances

(Continued from page 39)

saw. Protection is very complete, and as it is not necessary for the operator to give much attention to safety he can work at maximum speed. These guards are applicable to any size of band saw and with any kind of work.

One of the latest developments, if not the latest, in protection against shaper accidents is a guard having a sliding pressure foot tension furnished by springs which hold the work firmly against the table, and permitting of sliding variations in thickness of the material. It is also furnished with a reversible non-kick-back finger. This guard is, furthermore, adjustable for different diameters of cutter heads and suitable for any type of work or shaper.

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MAKE THE MOST OF THE IMPENDING UPSWING. DIRECT YOUR ADVERTISING TO THE "P. A.".... THE MAN WHO DECIDES WHETHER YOU OR YOUR COMPETITOR GETS THE ORDER. SCHEDULE **PURCHASING**, THE NATIONAL MAGAZINE DEVOTED WHOLLY TO THE INTERESTS AND PROBLEMS OF PURCHASING EXECUTIVES.

*Analysis of actual requisitions and purchase orders made June 29th. Details on request.

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11 West 42nd St., New York

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A few of the various services it is now rendering to more than **25,000 concerns** in the U. S.—**All Lines—Everywhere.**

It often saves more per week than it costs per year.

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Look in the Register for any product you want. It will instantly show you whose catalogues and circulars to consult, or whose to write for—often worth its cost for this service alone.

TR has in excess of 15,000 factual descriptions from manufacturers.

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- 6—TO RECALL TO MIND products previously presented by a salesman or through an advertisement.

TRY THESE SUGGESTIONS ON YOUR NEXT PURCHASES—WE FEEL CERTAIN YOUR SAVINGS WILL BE SUBSTANTIAL.

THOMAS PUBLISHING CO., 467 Eighth Avenue, New York, N.Y.



PROTECT HEALTH OF WORKERS— Use Only Sterilized Wiping Cloths!

Today the "Safety Minded" employer invariably insists that wiping cloths used by his workers be *sterilized*. He knows that a single bale of *contaminated* wipers can spread infection throughout an entire plant — *cause costly lay-offs, interrupt production schedules, and greatly increase compensation costs.*

The Sanitary Institute of America provides a means whereby the customer who wants a genuinely sterilized wiper can buy it with complete assurance that he will get what he pays for.

Every bale or package of wipers shipped by an Institute Member bears the Institute Seal shown above. This seal guarantees that the contents have been thoroughly boiled in a solution containing 76% caustic and/or chloride of lime and dried at an average temperature of over 212° Fahrenheit.

For complete certainty that wipers are actually *sterilized* and safe to use, insist on the Institute Label on every bale.

THIS ADVERTISEMENT SPONSORED BY THE FOLLOWING MEMBERS OF
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CLEVELAND, OHIO—Mansco Corp., 3524 East 74th St.
DULUTH, MINN. Northwestern Wiping Cloth Co., 438 Lake Ave., S.
PITTSBURGH, PA.—Armstrong Sanitary Wipers Co., 1233 Spring Garden Ave., N. S.
PITTSBURGH, PA.—Scheinman-Neaman Co., 1024 Vickroy St.

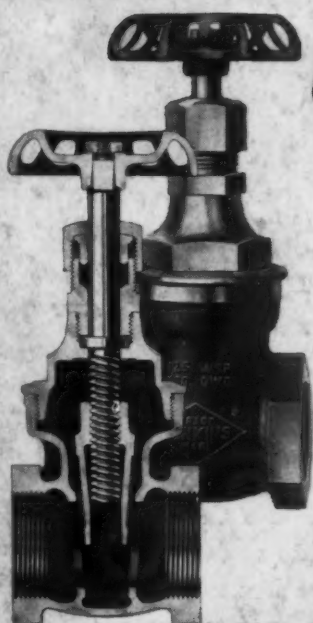
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The Sanitary Institute of America, 10 S. LaSalle St., Chicago*



"I PICK BRONZE GATES

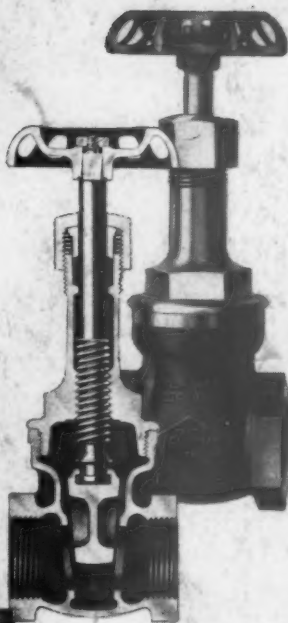
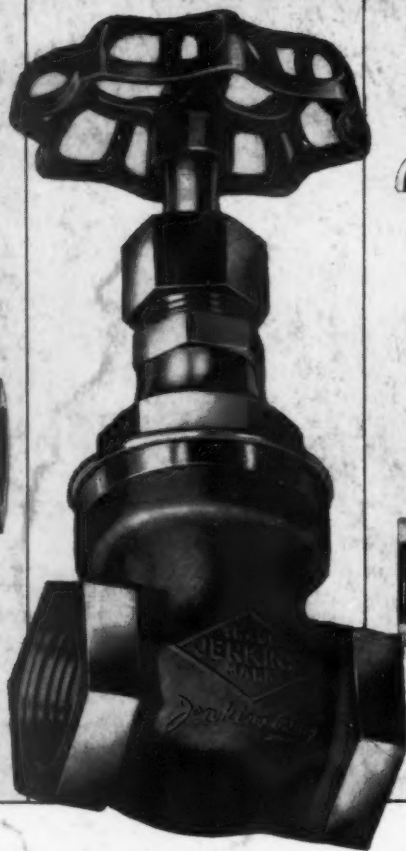
with the Greatest of Ease"

EXACTLY THE VALVE YOU NEED FROM THE JENKINS LINE



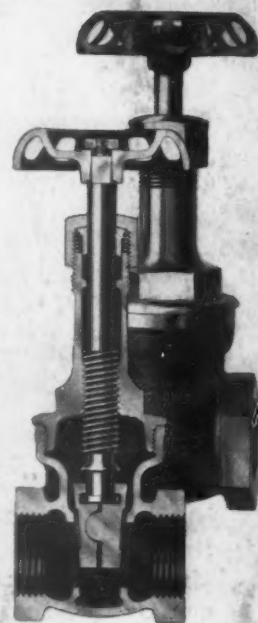
**SOLID WEDGE
STATIONARY SPINDLE**

Available in 125 lb.—150 lb.
200 lb.—250 lb.—300 lb. Patterns
Screwed or Flanged



**SOLID WEDGE
TRAVELING SPINDLE**

Available in
125 lb.—150 lb. Patterns
Screwed or Flanged



**SPLIT WEDGE
TRAVELING SPINDLE**

Available in
125 lb.—150 lb. Patterns
Screwed or Flanged

THINK what it means to you when we say "the Jenkins Bronze Gate line is complete". No need to accept a valve style you don't like. No need to adapt a valve to duty for which it was not designed. You pick the exact spindle, wedge, bonnet or end style to meet your service requirements.

Our specification folder No. 181 gives construction details, sizes and patterns on the whole range of Jenkins Bronze Gates. It will be a help to you in selecting the *right* gate for each service. Write for your copy.

JENKINS BROS., 80 White St., New York City; Bridgeport, Conn.; Boston; Chicago; Philadelphia; Atlanta; Houston. JENKINS BROS., Limited, Montreal; London, Eng.

 *Jenkins*

gives you everything in bronze gate valves

28

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